AERO MODELLER

JUNE - - 1939
Vol. IV No. 43

WHY NOT JOIN A CLUB?

A FULL LIST OF CLUBS IS GIVEN IN THIS ISSUE

GIVEN AWAY FREE —

FULL SIZE SCALE PLAN OF A BEGINNER'S DURATION 'PLANE

AND A ROCKET GLIDER 'PLANE TOO!!

6D.

THE

NORTHERN HEIGHTS

MODEL FLYING CLUB

Affiliated to The Society of Model Aeronautical Engineers

7TH

ANNUAL GALA MEETING

GREAT WEST AERODROME, HEATHROW, MIDDX.

By permission of C. R. Fairey, Esq., M.B.E., F.R.Ae.S., and
The Fairey Aviation Co. Ltd.

Sunday, June 18th, 1939

11 am. until dusk.

8 COMPETITIONS

UNLIMITED INTEREST!

OFFICIAL PROGRAMMES, available by post from June 1st until 14th,

Send 4 penny stamps to

C. A. Rippon, Hon. Organizer,
58 Hampden Way, Southgate,
London, N.14

THE AERO-MODELLER
ALLEN HOUSE
NEWARKE STREET
LEICESTER

Phone: LEICESTER 64322

VOL. IV. No. 43. JUNE, 1939

CONTENTS

EDITORIAL.—All communications should be addressed to the Editor, THE AERO-MODELLER, Allen House, Newarke Street, Leicester, and contributions must be accompanied by a stamped addressed envelope for their return in the event of being unsuitable. Whilst every care will be taken of MSS. submitted for consideration, the Editor does not hold himself responsible for safe keeping or safe return of anything submitted for his consideration.

ARTICLES should (preferably) be typed or written on one side of the paper only, and should normally not exceed 1,200-1,400 words.

DRAWINGS should be in Indian ink on white card or linen tracing cloth. Actual size is not important, but the length/width ratio should be 10:7 (for full-page reproduction) and 4½:7 (for half-page reproduction).

PHOTOGRAPHS must have sender's name and address and full description written on the back, and under no circumstances can they be returned.

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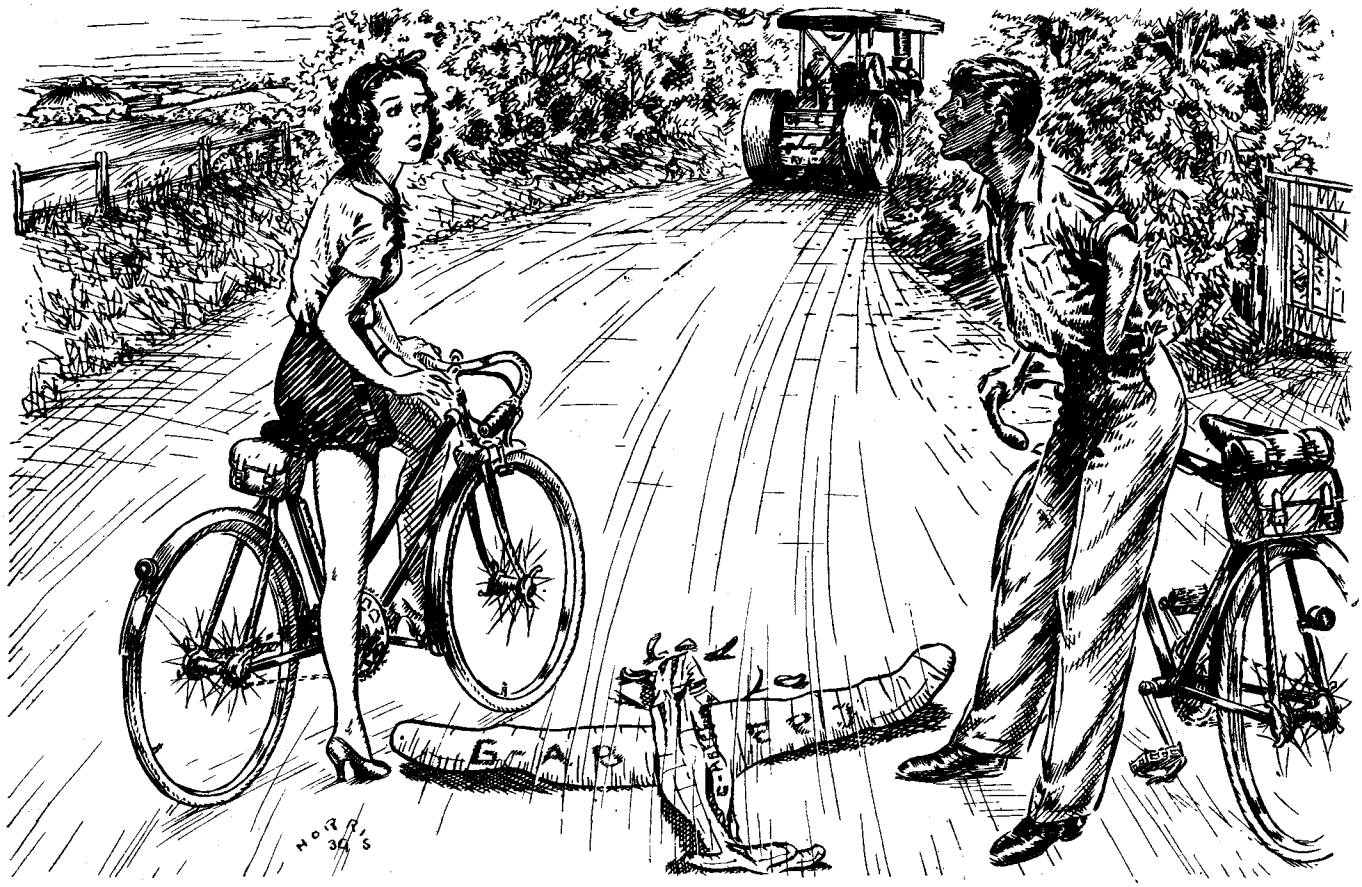
CHEQUES are posted on or before 15th of the month following publication.

SUBSCRIPTION RATES.—THE AERO-MODELLER will be mailed, post free, to any address in the world for an annual subscription of 8/6.

OH, H——!



" Jimmy, what a shame! Can't you stick it together or something? "

Our front cover photo is published by courtesy of the " Yorkshire Observer," and shows members of the Halifax Club at their recent rally.

JUNE - 1939
Vol. IV. - No. 43

Tel. Leicester 65322

The AERO MODELLER

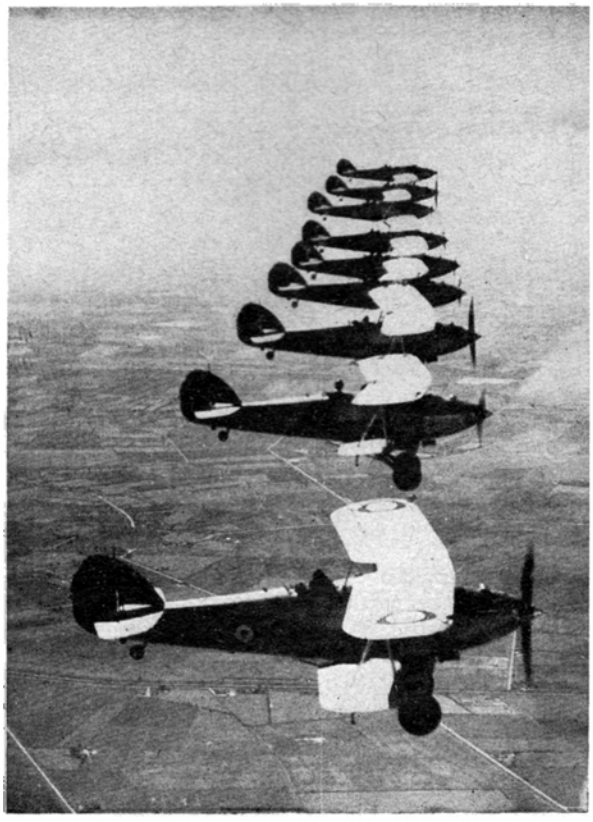
INCORPORATING THE "MODEL AEROPLANE CONSTRUCTOR"

EDITORIAL

EMPIRE AIR DAY is on Saturday, May 20th, by which time readers should have received their copies of this issue, so this is just to remind those young fellows who may be *thinking* of joining the Royal Air Force that *now* is the time to go and see what life in it is really like!

On page 404 we give a list of R.A.F. stations which will be open to the public, whilst below we give a photo showing the type of formation flying, which, amongst many other fine performances, will be demonstrated during the displays.

We publish this, and the other official photo on page 404, by kind permission of Wing-Commander J. R. Cassidy, Press Liaison Officer, of Cranwell, at whose invitation we recently visited the station to see a dress rehearsal of the display to be given on Empire Day. Cranwell, which is under the command of Air Vice-Marshal J. E. A. Baldwin, C.B., D.S.O., O.B.E., is well known as one of the largest stations devoted to the training of cadets and apprentices, and has a large model aeroplane club (affiliated to the S.M.A.E.) which, under the patronage of the officer commanding, has been largely developed by Warrant Officer P. R. S. Gutteridge and Flight-Sergt. W. H. Crittle. On pages 414-5 of this issue Mr. J. C. Smith, hon. competition secretary of the S.M.A.E., gives full particulars of the petrol 'plane competition for the *Flight* Cup, which will be held at Cranwell at June 11th; and when we say that Cranwell possesses the longest tarmac take-off runway in the country, and has no trees in the neighbourhood, we surely describe the petrol 'plane enthusiast's idea of a flying field!



* * * * * *

Petrol 'planes and third-party insurance are, of course, inseparable, and we again *appeal* to all owners of this type of model aircraft to effect this insurance. We know full well that there are still many 'planes unregistered with the S.M.A.E. and which are uninsured. Once again we reprint the necessary forms on the back inside cover of this issue, by means of which this insurance can be obtained through the N.G.A., and appeal to every reader who has a petrol 'plane to join as soon as possible.

* * * * *

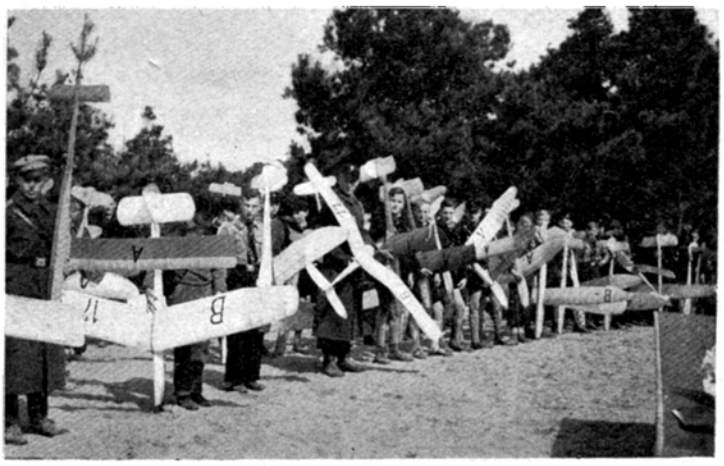
It is sometimes said that particulars of our latest R.A.F. aircraft are first obtainable in foreign journals — usually American! Be that as it may, we think this time *we* score, with the publication in this issue of scale plans of the Douglas mystery super bomber. With a wing span of 250 ft., a weight of 80 tons and a power of 12,000 horses, this 'plane should hold the record for size for some while yet! No doubt many of our "solid scale" readers will build models of this 'plane, and we look forward to receiving photos of them in due course.

Our next issue will be a Special Summer Number. In addition to a really fine lot of articles, there will be announced full particulars of a "Free for All" competition of great interest; and with the issue there will be, as usual, another large large free plan.

THE EDITOR.

MODEL AVIATION

By PAUL SCHRÖTER,



Competitors of a N.S.F.K. group.

IF you want to understand the way in which model aviation is going on in Germany to-day, you must realize that two events of this century greatly affected evolution in our country. The disastrous consequences of the " Peace Treaty " after the " Great War," and the revolution in 1933, are milestones on the way to a united Germany, which cannot be overlooked.

There is little to say about the pre-war period, as development of aviation in Germany, Great Britain, France, Italy, and the United States of America, followed much the same lines.

At the beginning of the gigantic development of aviation in all the world, we find the name of the German pioneer, Otto Lilienthal. He was the first German to build flying models, and we know that he tried many of them before, in 1891, he made his first flight with his first glider, which is still to be seen in a place of honour in the hall of the famous British Science Museum. In 1897 another German designed a model driven by a carbonic-acid motor, and this model also flew. In 1901 the well-known engineer, Hans Grade, designed several models, from which he built his first 'plane, which left the ground on October 30th, 1908, at Magdeburg. In 1910, after the " International Aeronautic Exhibition " at Frankfort had closed its gates, the first clubs were formed. The " Flugtechischer Verein Frankfurt " tried to manage the problems of model aviation. Oscar Ursinus, editor of the well-known German magazine, *Flugsport*, was one of the most active promoters. " Rhönvater " Ursinus, as they call him now, is still very much interested in model aviation. There is no competition at the Rhön, where we do not see his well-known face with a soft hat and the inevitable pipe.

Three years later we count some twenty different clubs dealing only with model aviation. They were spread all over the country, and united to the " Verband Deutscher Modeleflugvereine " (Society of Model Aviation Clubs).

In the following years, exhibitions, with hundreds of models, started to raise the understanding of the people in model aviation. In 1912 we began to build competition models. In this year the German, Meer, took part in a competition in France (Clermont). He was the happy winner of two first prizes. In the next two years further progress was reported everywhere, and many good " times " were flown.

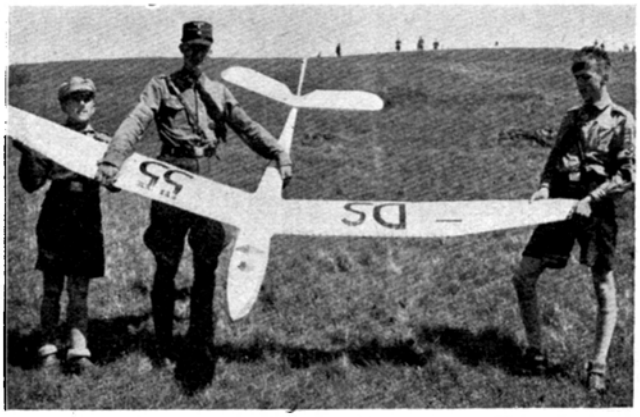
Then came the Great War. It stopped, more or less, the building of models. The German youth paid their tribute on the battlefields in all parts of the world, and those who remained at home had no time for flying models. The lack of rubber and silk stopped every attempt. With the end of the war ends the first chapter of model aviation.

There is so little to say on the period that started now. At the beginning stands the word " Versailles." I do not believe that any foreigner is capable of understanding what it meant to this country, and what it meant for the evolution of aviation. All our 'planes had to be destroyed, all motors to be smashed, all props. to be cut to pieces, and all clubs to be disorganised, even those for model aviation. Nothing was left but memories and a strong will in the hearts of some to begin once again.

One thing could not be destroyed. That was the spirit of our dead heroes of the German R.F.C., and this spirit gave birth to a new flying generation, who were only boys when the war ended, but are now pilots in the new German Air Force to-day.

While there was no interruption in the evolution of aviation in other countries, in Germany everything had to be restarted, as there was nothing to carry on with. Some " old hand " spun the first threads, and after a few years the " Deutscher Modell-und Segelflug Verband " (German Glider and Model Aviation Club) was alive again. One section was the " Mitteldeutsche Arbeitsgemeinschaft " (Middle-German Union), a very active organisation, with headquarters in Magdeburg and

Model DS55, directionally controlled by a photo-electric cell, is shown below in the hands of its owner, and, on right, just after being launched.



Dresden. Four competitions were started that year. The competition rules " put the wind up " the young competitors. Every competing model had to make eight flights. One distance flight and one duration flight (both hand-launched and launched from the ground), one circle flight, one destination flight, one altitude flight

IN GERMANY

Lauenberg, Elbe

A happy group at the Wasserkuppe . . . and an outsize in gliders!

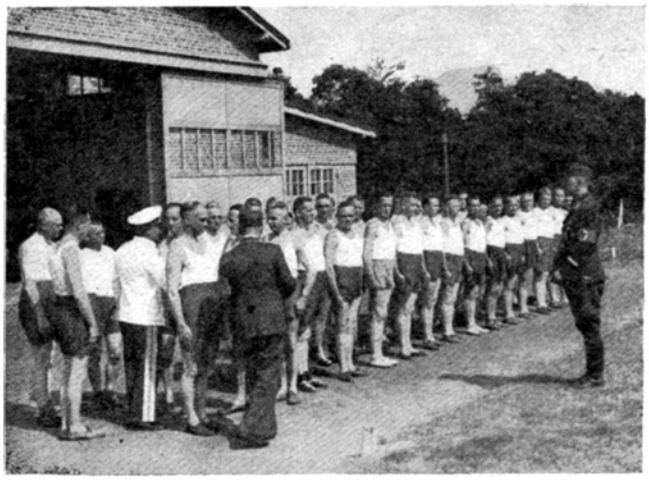
and one loading flight. These rules showed the way in which the organisers wanted the job to go. In the meantime, young enthusiasts had retired to the beautiful slopes of the Rhön, or into the quiet sandhills of the East Prussian coast. Their one idea was: " If we are not allowed to fly with motors, we will fly without them." This was their aim and their " job," too. The young pilots were left to themselves. No one cared for them and no one gave them any assistance. They built tents to sleep in, and barracks from old boxes to work in. They did not leave their new homes even in winter. Designing, working, flying and repairing, from sunrise to sunset. " Where there is a will there is also a way." They succeeded after all. Very soon their fine achievements became known to all the world. Surprise! Astonishment! The glider movement

had made its way. Do not forget, all who are gliding in the world now, that the beginning was made in the mountains of Germany. The movement did not only affect aviation, but particularly model aviation. The appeal went right to the hearts of the German youth. Youth is daring, defies all obstacles, and very soon masters them. Clubs for gliding and model aircraft were formed in many a town and many a silent village. The German boys had found their hobby. After an attempt in 1929, the " Deutscher Lüftfahrt Verband " started the first national competition for glider models at the historic Rhön in 1930. Horst Winkler (editor of the German *Modellflug*, and designer of many successful glider models) won the prize. His " bird," " Grosser-Winkler," has been built in thousands in all parts of the world since then. In 1932 Oskar Gentsch followed with the " Gentsch," a model especially designed for the stormy conditions prevailing in the Rhön. The model made a distance flight of 8,800 m. From 1930 to 1932 model aviation went its way, ever upwards.

And, here we enter the last period of this evolution, the end of which is not yet seen. In 1933 the Führer gave orders for a rebuilding of a huge German air force. Herman Göring, the last Commander of the Richthofen Squadron of the Great War, took control of everything that had to do with flying. He founded the Deutscher-Luftsport-Verband. D.L.V. and all clubs and organisations voluntarily disbanded themselves and joined the only big organisation of civil aviation. The first president was Bruno Loerzer, also a pupil of the " Red Knight." Every assistance was given to all branches of flying, in every way possible. Model aviation was recognised as the base of aviation in every form. So in 1933 the " movement " did at last get a good " thermal," and started right away, and cast anchor in towns and villages from the Alps to the northern sea, from East Prussia to the river Rhine.

In consequence of this an agreement was signed between the D.L.V. and the H.J. (Hitler youth) saying that the members of the " Fluger-H.J." were to be trained in building models and gliders, as well as in flying, by skilled teachers of the D.L.V. More than that, the Minister of Education gave orders that in all German schools model aviation was to be taught as a regular branch of study. These two events made a solid base for a quiet and steady evolution of the problems concerning model aviation and aviation sport as a whole.

In April, 1937, the " Nationaleozialiststische Fliegerkorps " (N.S.F.K.) became the successor of the D.L.V. Chief of the N.S.F.K. is General der Flieger Christiansen, a well-known war pilot, the Commander of D O X, an enthusiast of avation, a friend and comrade of youth. The right man in the right place. Before I come to the purely technical aspect of model aviation. I want to say something about the organisation of the N.S.F.K. It is divided into groups, standards and storms. The minimum age of members is limited to 18 years, all members being volunteers. There are active members and assistance members. The whole work is run on the following lines: Building and flying model aircraft, building gliders, flying gliders and aeroplanes. The Storms of the N.S.F.K. have their own workshops, hangars and machines. Besides this, the N.S.F.K. run some dozens of schools. A course lasts three weeks. Everything is free. As the description of all branches would take too much space, I will restrict myself to the part which deals only with model aviation. It is the task of the N.S.F.K. to train these millions of youngsters, who are so intensely interested in model aviation. For this purpose every Storm has enough workshops to occupy the groups of its



At the R.M.B.S., Lauenberg. General Christiansen (white cap) inspecting a special course for Government officials. They all had to begin with paper models. In front of the group is the writer of this article.

district. Every workshop is equipped with standard tools, and everything that is necessary to teach about 25 boys. There is still a lack of teachers, though we have three, and in the near future five " Reichs-Modell-hauscheren " (High Schools for Model Aviation). 1,200 men pass each of these schools every year. (The writer of this article is the leader of the R.M.B.S. at Lauenberg). Who is coming to the schools? Everyone interested in model aviation who is willing to spend his free time for the purpose of the N.S.F.K.

Having passed two courses a member gets his certificate as teacher of model aviation. At school you find men and boys, teachers of public schools and pupils, skilled and unskilled labourers, students and workmen. They are all pulling the same strand. There are courses for beginners, and for old hands. For all beginners there is a standard building programme, and at any workshop in

At the Wasserkuppe. A taking-off station. In the background the monument. Farther behind, the mountains of the Rhön.

Germany you will always find this programme being carried out. Here it is :—

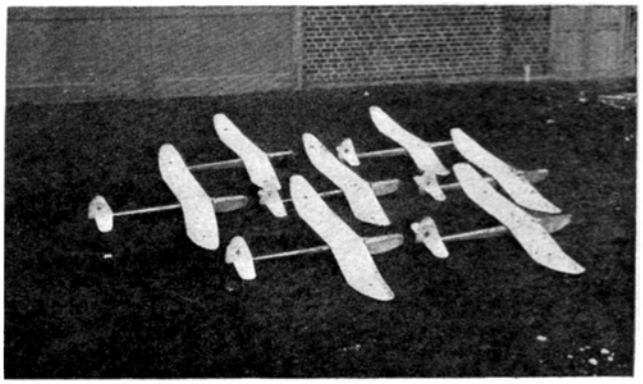
1. (Paste-board models).
2. Kiek in de Welt.
3. Emberts-modell.
4. Winkler Junior.
5. Baby.
6. Stat-Rumpfmoddell.
7. Zimmerflieger.
8. Schwingenmodell.

Numbers 1 to 5 are gliders. 6 is a rubber-driven model, 7 is an indoor model, and 8 is a flapper. Having gone through it, they start to build competition models (gliders, Grosser Winkler, Strolch, Hast, and Grauran II), rubber-driven models, petrol models, indoor models, and models with self-steering or radio control. All these are plan models. After that they begin to build models of their own designing.

About Easter is the time when the competitions begin. Every Storm, Standard and Group have their own competition. The best models of the groups are sent to the National Competition (Reichs-Wettlewerb). There are four of them.

National Competition for glider models.
National Competition for rubber-driven models.
National Competition for petrol models.
National Competition for indoor models.

Every group has to send 25 models, and is bound to send certain types of models, which are fixed in the rules. Another rule says that 80 per cent of the team must be under the age of 18. It is the task of the staff officer for model aviation of the Storms, Standards, or Groups, to



Competition gliders—" strolch "—all have flown over 15 minutes, tow launched.

pick out the right team, and the success very often depends on how carefully this work has been done. Some of these officers are " old foxes " who have " a nose for it." Anyhow, these wonderful competitions, with 400—500 competitors, and 10,000 and more visitors, are the climaxes of model aviation in Germany. Old friendships are renewed, new ones made. To be chosen for the group team is the pride of every boy, and the reward for long, hard and successful work.

(Mr. Hawkins, Mr. Smith, Mr. York, and Mr. Keil must have some idea of it, because I had the pleasure of " guiding " them at Borkenberge in 1937, and Mr. York also knows the Wasserkuppe. Frank Zaic was also one of the party).

It is necessary to say that the radio is also working with us. Reports are given out at any time. Reports of the big competitions are broadcast by all German stations, and the German short-wave stations are sending these reports abroad. In 1935 an "Hour for modelling" was given through. The " Kiek in de Welt " was introduced to the boys. It can be built within four hours. Instructions were broadcast, and then the work began in thousands of workshops. The result of it? 200,000 sets of materials were ordered within a very short time. Last year the N.S.F.K. distributed 500,000 paper-model plans in public schools. The model was built by radio instructions in half-an-hour. In 1936 the well-known magazine, *Modellflug*, made its appearance. It is very good, and the idea proved to be grand. We cannot do

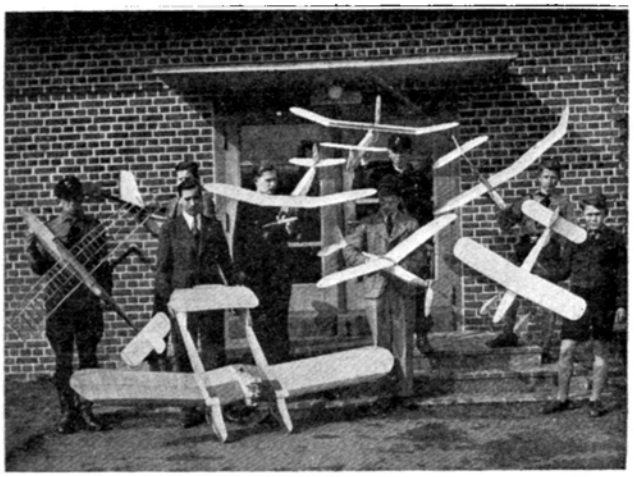
without it now. It is published by the N.S.F.K. The editor is Horst Winkler. He knows something about it.

In 1937 Germany started to take part in foreign competitions. Our first trip was to England, and, packed with a lot of experience, but without the trophy, we recrossed the Channel again!

We did not win the trophy, but we won a lot of friends, and those who were lucky enough to be with the team will never forget the days in which the modellists of all the world proved to be a team of friends, in which fine sportsmanship and the will to international understanding prevailed. Last year we went to France, Switzerland, Belgium, Yugoslavia, and Norway. Sometimes that " little bit of luck " was with us, and sometimes someone else took it away.

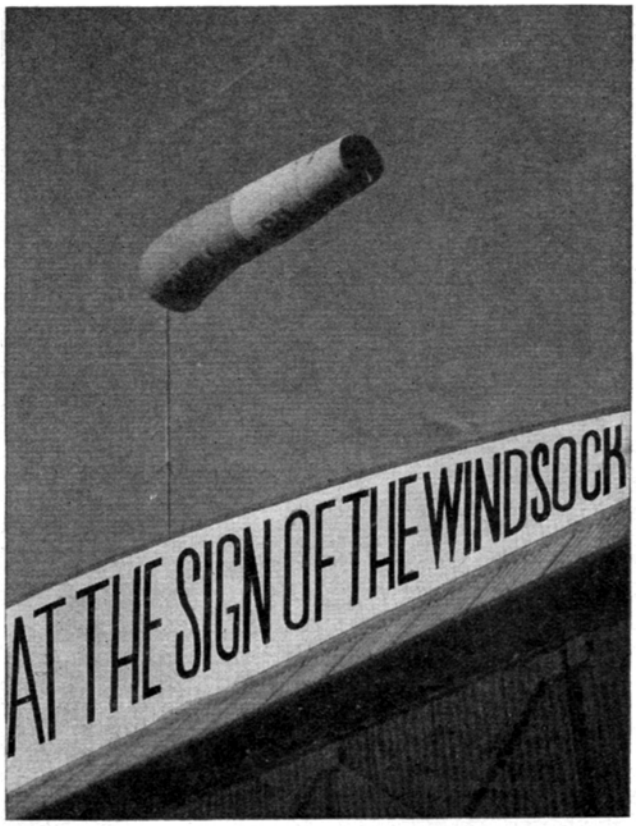
One day we shall have an International Competition in Germany, and when Germany calls you will see a fine bit of organisation, and will have a hearty welcome. " You will think you are at home with mother caring for you." I intended saying something about technical affairs, but I think the pages are full now. It must be said another time. I will just say one thing more before I close. Some of my comrades would like to exchange magazines with some of you. If anyone would like to have the *Modellflug* please let me have address, and I will arrange for it to be forwarded.

Soon the " Internationals " will take place in the various countries. Germany is sure to be one of the visiting parties. We have worked hard and will do our very best when the contest begins.



Petrol, rubber and glider models built by the author's Storm at Lauenberg.

A petrol engine-driven " flapper " which has flown for 16 minutes.



ON page 395 appears an announcement by Elite Model Airplane Supplies of the " Nippy," an attractive-looking high-wing model, offered at a popular price. The " put-put " is another model which should interest readers, since it has incorporated a device for imitating the noise of a petrol 'plane. Elite Model Airplane supplies offer a 28-page catalogue for the modest sum of 2d., which will prove very interesting to read.

* * * * * *

Vimâna Aeromodel Supplies, whose advertisement appears on page 409, offer a very realistic-looking biplane of 46 in. span in kit form. It is stated that the average R.O.G. performance is over 60 seconds. A fine photo of the model is shown in the advertisement.

* * * * * *

" Joy-plane " products are advertised on page 443 by means of the popular banner flown from a plane. The range of dopes and cements that is offered is wide, and all are available from model shops throughout the country. Recently we had some supplies from this firm for testing, and can recommend them as fully coming up to the claims made for them by the manufacturers.

* * * * * *

From Northern Model Aircraft, whose advertisement appears on page 438, we recently received a copy of their latest catalogue, which can be obtained for threepence. The " Condor " and the " Clipper," two well-known models, are fully described, and many solid and flying scale kits. A wide range of propellers, all illustrated, and a large section of materials, are fully described in this catalogue, which is very nicely printed.

" What the Stars Foretell " is a headline to be seen in most of the weekly and daily papers—what Premier Aeromodel Supplies' *Northern* stars foretell is told on page 421, in several appreciative letters quoted in Premier's advertisement. The Super Duration high-wing monoplane, which is illustrated, was designed by Bob Copland, holder of the official world record for R.O.G. flight, and is offered in kit form at an attractive price.

* * * * * *

On page 370 of our *last* issue we referred to S.B.5 super finish, marketed by Studiette Handcrafts as supplied with the Tutor Mark I kit. This is incorrect. S.B.5 is a new product which Studiette have just recently introduced, whilst the Tutor Mark I kit has been on the market since last December.

* * * * * *

On page 421 appears an advertisement on behalf of LePage's Glue Co. Ltd., who recently sent us samples of their super balsa cement and LePage's liquid glue. Both of these samples have been used in the construction of a petrol 'plane at present being built in our workshops with very satisfactory results. The products of this firm may be obtained from any model shop, or, in case of difficulty, direct from the address given in the advertisement.

* * * * * *

H. and C. Williment, of Norwich, whose small advertisement appeared in our last issue, ask us to point out that their name was incorrectly spelt as Williams. The full name and address is H. and C. Williment, 39 and 41 St. Benedict's, Norwich.

* * * * * *

Model Aircraft Supplies Ltd., of 171 New Kent Road, London, S.E.1, in sending us a copy of the latest issue of their well-known " Green Book," inform us that Mr. E. W. Chasteneuf has joined their staff. Mr. Chasteneuf, of course, is well known as the leader of the Wakefield team in 1938 and 1939, and as a member of the victorious team which went to Yugoslavia last year, and returned with the King Peter Cup and many other prizes. He is also holder of the British gliding record with a flight of over 20 minutes.

The " Green Book " is attractively made up, and contains over a dozen pages packed full of details of all kinds of sundries and accessories. Several petrol engines and petrol 'plane kits are fully illustrated, together with a whole host of solid and flying scale kits. The " Green Book " will be sent to all readers sending 4d. in stamps.

* * * * * *

On page 424 Kanga Models offer a special section for petrol 'plane builders—trailing edge section 1 in. × ¼ in. —also " Trophy " rubber, which is advertised as stretching to 10 times its normal length. Kanga offer several petrol 'plane kits of well-known design, and also the G.H.Q. petrol engine kit, particulars of which are given in the advertisement.

HOW TO PUT AERO-MODELLING IN THE PRESS

By LOUIS KATIN
(Late Editor " Welwyn Times")

DESPITE the fast-growing popularity of model aeronautics, it is rather surprising that so little attention is paid to the sport by the national and local press. Every district now has its coterie of young or adult enthusiasts, and the editor wise enough to take advantage of this universal interest would be rewarded with a flattering increase in circulation.

Small groups cannot influence national editors, but they can benefit their hobby enormously through their local newspaper. Big London dailies cannot afford space except for what they consider important features, but the humbler district paper can always find room for news about local interests. Editors, in fact, welcome such news, for they are anxious to cater for every resident in their circulation area.

By adroit use of the " local rag," aero-modellers may, if they have not already a club, form one; or, if they have, extend its membership and keep existing members together. They may, through the press columns, introduce the general public to the hobby, and generally promote the cause they have at heart.

Let us suppose you are anxious to form a new local club. (But even if you have a club already, the following hints will prove helpful). Your first move, then, will be to approach the editor personally and point out the interest which would be excited by a regular literary feature concerning local model aeronautics. You would have to be prepared to support your case, and would therefore produce facts and figures proving that there are already so many fellow-enthusiasts in the vicinity, alternatively, or in addition there are so many potential aero-modellers only waiting for a lead through the newspaper.

If your case is made out, the editor should allow you, say, a couple of hundred words a week, probably more when you specially need it. Holiday periods are good times to send in extra copy, as news drops off then, and space is not so heavily mortgaged.

Photographs are usually welcomed by editors, especially if you can loan them without a copyright fee. Pictures liven up a newspaper, but small-town editors are so hard pressed for costs, that the price of block-making plus photographer's fee prevents them using as many illustrations as they would like. But one picture is worth 10,000 words (as a Chinese sage has remarked), and if you can introduce a good one into the press you will find it excellent publicity.

Be sure and ask politely for a bold heading to your weekly copy—" Aero Model Notes," or some such label —and also that the feature should appear roughly in the same place each time. Remember that a regular hammering-away at readers' minds is the best method for propaganda, and it is better to have only 50 words in each time than 500 only occasionally.

Within a very few weeks you should have at last got the nucleus of a club together, and should then be able to describe the members' individual or collective activities. Give everything a purely local peg, as local papers do not want merely general news. You should have plenty of material for interesting personalia, too.

If you can persuade a member of the editorial staff, or one of his children, to join the club, so much the better. Muman nature being what it is—among journalists as among ordinary mortals—you should stand a better. Human nature being what it is—among jourdon't forget that there are usually scores of other local sports thirsting for the limited space available.

Getting a staff man personally interested would probably relieve you of the necessity of writing up. But, if you have to do the writing yourself, do make the reports as entertaining as possible, and try to put over some of the fun of making and flying models. Merely factual reports will not interest as much, and editors don't like them, for nowadays even " local rags " must not be stodgy and dull.

Rules, elementary but usually disregarded, are: (1) Write, or preferably type, copy clearly on one side of the sheet—and don't use a torn-off sugar-bag for the purpose; (2) submit copy as early as possible before press-day, in order to save it from the blue-pencil; (3) if referring to specific events, mention exactly when and where.

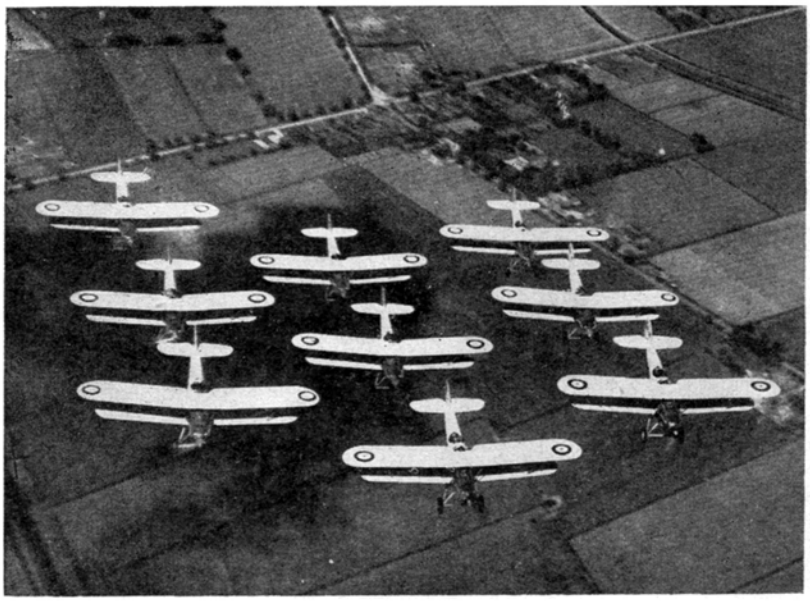
A fourth rule is: Don't make a notice-board of your " Notes." Editors, very obligingly, often encourage clubs by allowing them to insert gratis notices of their forthcoming events. These notices, however, rightly belong to the advertisement columns, and clubs should now and again help both the paper and themselves by paying for a displayed advertisement.

Another technique in trying to form a club through the press is to send in a few " Letters to the Editor," spaced two or three weeks between. These would point out that a club was being formed, and asking people interested to get in touch with the writer. Should you get a fair number of replies, you could then safely go to the editor and point out the desirability of his printing a weekly aero-model feature. But the method is a bit risky, as it is just possible you might get only one or two replies, or even none at all.

In addition to letters, try sending an occasional full-length article to the editor. If you can hang it on a local peg he may be pleased to print it, and it would secure valuable publicity.

" Invite the Press " is a good motto to follow. Unless privacy is essential, invite the editor to send a reporter not only to your first foundation meeting, but all subsequent ones. Ask him also to send someone to see models being made and flown. Making press contacts in this way proves very useful, and as journalists themselves are in contact with all sorts of influential people, you may be able to cast your net more widely than you think.

EMPIRE AIR DAY — SATURDAY, MAY 20th



A squadron of Hawker "Audax" practising over Cranwell Aerodrome in readiness for Empire Air Day.

ON Empire Air Day (May 20th) the Secretary of State for Air (Sir Kingsley Wood) and the Chief of the Air Staff (Air Chief Marshal Sir Cyril Newall) will travel in three-and-a-half hours a distance which in the days of the stage coach might have taken three-and-a-half weeks!

They will be making a 485-mile aerial tour, calling at six of the sixty-three Royal Air Force stations that are staging Empire Air Day displays.

These stations will be open from approximately midday, and the flying displays will commence about 2 p.m., although times vary a little for different stations.

Programmes will last for between two and three hours, during which examples of formation flying, dive bombing, air attack by fighter aircraft, and other demonstrations, will be given.

Empire Air Day is the only day in the year when Royal Air Force stations are thrown open to the public, so here is the only opportunity for scale enthusiasts to see, at close quarters, the many types of machine now in use in the R.A.F.

In addition, several types of aircraft will be available for inspection at most stations, and the workshops, hangars, mess-rooms and barrack-rooms will also be open to the public.

Admission for adults will be 1s., and for children 3d. The profits will be allotted by the Air Ministry to charitable and philanthropic objects connected with aviation.

List of R.A.F. Stations to be opened to the public on Empire Air Day, May 20th, 1939.

Abbotsinch, Renfrewshire.
Acklington, Northumberland.
Aldergrove, co. Antrim.
Biggin Hill, Kent.
Bircham Newton, Norfolk.
Boscombe Down, Wiltshire.
Brize Norton, Oxfordshire.
Calshot, Hampshire.
Cardington, Bedfordshire.
Castle Bromwich, Warwickshire.
Catfoss, Yorkshire.
Catterick, Yorkshire.
Church Fenton, Yorkshire.
Cranfield, Bucks.
Cranwell, Lincolnshire.
Debden, Essex.
Detling, Kent.
Dishforth, Yorkshire.
Duxford, Cambridgeshire.
Evanton, Ross-shire.
Felixstowe, Suffolk.
Filton, Somersetshire.
Finningley, Yorkshire.
Gosport, Hampshire.
Halton, Bucks.
Harwell, Berkshire.
Hawkinge, Kent.
Hemswell, Lincolnshire.
Hendon, The Hyde, N.W.9.
Henlow, Bedfordshire.
Hornchurch, Essex.
Hucknall, Nottinghamshire.
Kenley, Surrey.
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Mildenhall, Suffolk.
Montrose, Angus.
Mt. Batten, Devonshire.
Netheravon, Wiltshire.
Northolt, Middlesex.
North Weald, Essex.
Odiham, Hampshire.
Pembroke Dock, Pembrokeshire.
Penrhos, Caernarvonshire.
South Cerney, Gloucestershire.
Stradishall, Suffolk.
Tangmere, Sussex.
Tern Hill, Shropshire.
Thornaby, Yorkshire.
Thorney Island, Hampshire.
Turnhouse, Midlothian.
Upper Heyford, Oxfordshire.

Civil Aerodromes.

Ansty, nr. Coventry, Warwickshire.
Blackpool, Lancs.
Bristol (Whitchurch), Gloucestershire.
Cardiff, Glamorganshire.
Dyce, Aberdeenshire.
Feltham (Hanworth Park), Middlesex.
Hamble, Hampshire.
Luton, Bedfordshire.
Manchester (Ringway), Lancs.
Norwich, Norfolk.
Plymouth (Roborough), Devonshire.
Reading (Woodley), Berkshire.
Shoreham, Sussex.
Stoke-on-Trent (Meir), Staffs.
Yeadon, Yorkshire.

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It is a genuine appeal to all men and women to do just that little bit extra ; to make that extra effort which will make the difference between efficiency and stagnation. It is not enough to merely earn a living; we must make the best of whatever abilities we possess. We cannot wait for those abilities to develop themselves unaided : they must be trained.

By becoming efficient in your vocation you can give the best service to your country and to yourself. The more you increase your earning power the better it is for the country, and for yourself personally.

War or no war, earning power always brings its possessor to the front. It is no use waiting for better times. The ideal opportunity never arrives. We have to make the best of existing conditions. Therefore, delay is useless; it is worse, it is harmful.

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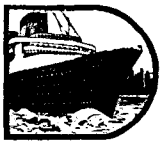


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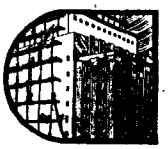

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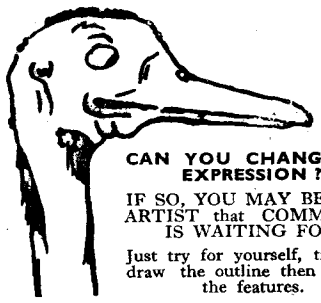

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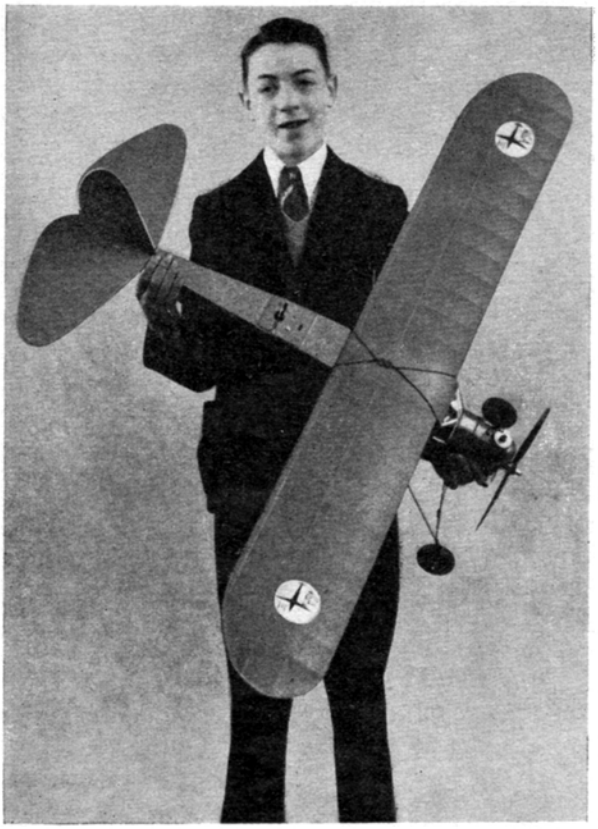


ON TEST —
THE CLOUD "ELF" PETROL 'PLANE KIT

Built by JOHN KLEE
Report by OUR TEST PILOT

Our photo is of John Klee, "Aero-modeller" staff, who built this kit entirely by himself. Note the N.G.A. transfer.

OF 52 in. span, and with a length of just under 8 ft., the Cloud "Elf" petrol 'plane is of a size that can be quite easily taken about without the need of a car or other conveyance, and thus meets the needs of those who want quite a small machine. At the same time the "Elf" is not under any handicap because of its small size as regards its flying capabilities.

Supplied by Messrs. Cloud Model Aircraft, of 304-6 High Street, Dorking, Surrey, the "Elf" kit is well made up, and complete with all necessary parts and supplies. The ribs, of Grant 8x section, are all clearly marked on high-grade balsa, and—a good point—are each labelled as to their position in the wing. 2¾ in. diameter air wheels, coloured tissue of stout but light weight, and ample quantities of dope and cement, are supplied. All wire parts are preformed.

A large plan showing every part full-size is supplied, together with detailed instructions. One feature on this plan we were very pleased to see was a notice stating that all petrol 'planes flown in Great Britain must be insured and registered with the S.M.A.E.

As stated above, this kit was built up by John Klee entirely by himself, without even expert guidance. Actually John built the model at his home, and not during "works hours" at all. This must not be read as indicating that the Cloud "Elf" alone can be built by a youth of John's age. I simply give the information as evidence that *any* make of petrol 'plane kit such as the "Elf" can definitely be built up quite easily.

The weight of the model, complete with engine, battery, coil, etc., is 26 ounces. This, with a wing area of 390 sq. in., gives a wing loading of about 9½ ounces per square foot, and results in quite a slow flying speed.

For flight testing the model, Messrs. Cloud loaned us a "Cloud 3" engine of their own manufacture. This engine, complete with coil, condenser and propeller, weighs 10 ounces. Bore and stroke are each ⅝ in. With piston of cast iron, an all-steel cylinder, and crank disc, shaft and cam of steel, it will be seen that the engine is of robust build. The petrol tank is formed up behind the crankcase, and it is possible to mount the unit either on the bearer arms cast integral with the crankcase or by means of three lugs at the back of the petrol tank.

The engine is fitted with a 9 in. diameter propeller, which it will drive at very good speed. It is a good starter and can be well controlled by the needle valve.

The flying performance of the Cloud "Elf" is definitely good; the take-off is short, and can be made from ordinary grassland. For normal flying it is not necessary to make use of the full power of the engine, which may be throttled back or run with the ignition retarded a little. On full throttle and ignition advance a steep climb results.

The glide is good and the model has no "vices" that we could discover. In regard to construction, the landing chassis wire might be slightly thicker (although it must be remembered that we were testing this machine in the country and not from a level aerodrome), since it required "bending straight" two or three times, and I think that the fuselage might be a shade wider, so that I could get my hand more easily inside when changing batteries, although John makes no complaint on this score!

Summed up, the Cloud "Elf" is a very pleasant little machine to build and fly, and should provide many interesting hours' pleasure to those who build her.

SIMPLE AERODYNAMICS—XII

By J. VAN HATTUM, A.F.R.Ae.S.

THIS then is the last of the series on Simple Aerodynamics, and I will try to fill it with some of the things left unsaid in the previous articles.

Number nine dealt with the airscrew, and was not continued, as I considered a question raised by one of my readers a very good subject for an article. So we will conclude it here.

I finished by remarking that the slip is usually taken as 25—30 per cent of the Theoretical Pitch. That means that for every foot the airscrew should advance, it really advances only 8 to 9 inches. We have also seen that this is to be expected; as we have calculated the theoretical pitch from the actual pitch angle of the blades. And we should allow for the angle of incidence of the blades to the air-stream. Still, the theoretical pitch is a figure that is easily calculated, and so long as we allow for the right loss or slip, everything is alright. But . . . this slip is a vague factor. How do we know that it will not be 40 per cent, or only 10 per cent? This is a matter of "empirical" knowledge; that is, it has been discovered in practice that the slip amounts generally to this figure. A slip of 40 per cent shows that we are dealing with a very bad airscrew indeed, while 10 per cent is a figure hardly reached even in full-size practice. So we may base our design on a slip of 25 per cent. Obviously one wants to cut down this loss. How is one to achieve this? In the first place by making a good airscrew; well carved, with a good section a good plan-form and both blades well-balanced aerodynamically as well as statically. That is, there must be no difference in the two blades. I remember a remark made by a rather sarcastic individual, who was inspecting and checking an airscrew: "Both very good single-bladers!" They may have been, but it cannot have been a good airscrew.

The plan-form and the speed are mainly the factors by which we can increase the efficiency of the airscrew. And this means, of course, reduce the slip. I have already mentioned that unpleasant influence called scale-effect, which is greatest at low speeds and small dimensions. Now, as the airscrew is in effect only a small wing, we must endeavour to keep the chord or width of the blade fairly large. Therefore, one should not use sharp tips and try to run the airscrew at a reasonably high speed. The latter is often impossible, except through gearing, as we want to use the energy of the motor over a long period. All the more reason, therefore, to use a wide blade. The subject of gearing is very interesting, and would repay the experiment. If one increases the airscrew speed the loss through scale effect is reduced, and the efficiency of the airscrew increased. Gearing of the airsrcew seems to be worth much more than the old-fashioned splitting of the rubber motor into two or more parts. And it entails no more work. Obviously, an airscrew running at, say twice engine speed, must have a correspondingly smaller pitch. Do not make the error of concluding that a small fast-revving screw is better than a large slow one. It is not! Compare two: one 16 in. diam. and one 12 in. In order to get the same tip speeds the small airscrew must run at a speed $18/12 \times$ that of the larger one. But the chord of the small one is proportionately smaller, and this again demands a 50 per cent higher speed. Therefore No. 1 must run at a speed $\frac{18^2}{12^2} = 2{\cdot}25$ times that of No. 2, in order to work under the same conditions. This brings us to flying scale-models whose performance will benefit greatly from geared-up airscrews.

The single-blade airscrew is an interesting development and has shown itself at least equal to the normal type. It is really surprising that it has come so late. The general principle of the single blade can be found in the case of the Everell airscrew for small sports 'planes, which has given very good results. This was the result of the desire to get the blade working in "clean air," i.e. to get it out of the wake of the second blade. Obviously, this does not apply to the model screw to the same extent, as the pitch is very much greater and the spiral path very much more drawn out. Outstanding advantages are, however, ease of construction, less chance of breaking the airscrew, and the ease by which it can be made to fold along the side of the fuselage. (Which, it must be admitted, can be achieved by the normal type as well). The blade, when revolving, will want to take up a position where its centre of gravity is farthest away from the axis, and the blade must be attached in such a way that no strain is put on the hinges. By hinging the blade freely on a skew axis, however, one can use the aerodynamic forces to get a "constant speed." As I have not tried this out I cannot say whether it works or not. It does work in full-size, as it is incorporated in the Everell airscrew. It will be clear that the single blade must have more area than the blade of the orthodox airscrew, if the motor is to run at the same speed. (We shall want this, as the motor must run for the same length of time). Therefore, the pitch should be the same. The pitch has nothing to do with the pulling power or thrust in the sense that when we want to increase the thrust at the same engine speed we must do so by increasing the blade section or the area. If we increase the pitch the distance travelled by the airscrew will not correspond any more with the distance travelled by the model in the same time. Pitch, blade area, and diameter are very much bound up with the speed of rotation and the thrust, and it is hardly possible to change one without changing the other. We follow the best course by designing an airscrew that will nearly fit our model and then making one or even two that will give just that more speed of revolution or a little less, as the case may be. It is quite impossible to get the right airscrew for a

particular type straightaway. There are too many unknown quantities, and an airscrew that is very near the ideal can only be obtained by systematic experiment. I know that these views are not mine, but have been preached by all good designers for many years. That may lend weight to the argument. In this case we can truly say, there are two points of view: Our point of view and the wrong point of view. An aero-modeller who will only use the very first airscrew he has made for his model does not give the model a fair chance. It is like running a high-performance car on a very doubtful brand of petrol.

In my last article I mentioned the flow of air round the complete model. This is of some importance, because the air may flow differently over the combination of a certain fuselage and a certain wing than it would over the two components separately. This may seem obvious, as it has been pointed out by many before, but it is none the less important. For it follows that two components that are good, from the point of view of drag, may give a bad combination, and even the reverse may be possible; that is, two average shapes may result in a very good combination. Unfortunately, we cannot predict with accuracy what will be outstandingly good, as it requires elaborate testing apparatus. We really have ourselves to blame that we do not know the proper shapes for our models. A wind-tunnel for testing half-scale models of the Wakefield type at their normal speeds is no more difficult to make than a large model steam locomotive. There are some technical difficulties, notably the method of measuring the airspeed at these low speeds, but they can be overcome. The expense, too, is not very much more than can be met by a small but enthusiastic band of modellers. The results of some experiments already made open up a new field of activity. I have a feeling that proper and systematic testing may eventually show that we should follow lines that are somewhat different from those of full-size aeroplanes. And anyone who can discover these shapes will be able to make quite a name for himself.

For the time being we must base our designs on full-scale aerodynamics. So far the results have been good. No one will deny that the models of reasonably clean aerodynamic design, such as produced by Bullock, Chasteneuf, Copland, Cahill, and others, bring home the goods. Their consistency shows that these models have a high aerodynamic efficiency. By predicting new shapes I do not refer to square "box-bodies," but to streamline shapes particularly suited to small sizes and low speeds. An indication that we must expect surprises is given by the very flat glide of models fitted with a folding airscrew. One would have thought that the blade, lying as it does along the side of the fuselage, would upset the air-flow to such an extent as to cancel out any advantages resulting from the removal of the blade itself. Apparently this is not the case, and the air seems to follow the new shape fairly well. The fuselage, which now has assumed an unsymmetrical shape —that is, in the case of the single blade airscrew— appears to be just as good as ever. Therefore one may conclude that up to a certain extent one can make quite drastic changes to its shape without bad results. On this note, which is both speculative and encouraging, I conclude the series. If they lead to different theories than we have been accustomed to, I shall feel that their purpose has been achieved.

THE S.M.A.E. AND MODEL AERONAUTICS

By A. F. HOULBERG, Chairman

EXPERIENCE has clearly shown that a certain amount of organisation is necessary in all classes of sport in order that the various events forming part of the yearly programme should be run satisfactorily and efficiently.

It has also been proved that satisfactory organisation in all fields of sport can only be achieved if the contests are all run under the same established rules.

For instance, imagine what would happen in the football and cricket worlds if every club was entirely independent, and formulated its own contest rules; chaos would exist, and interchange of fixtures would soon die out owing to the uncertainty of the conditions encountered.

For any sport to grow healthily it must be properly organised, with sufficient rules to eliminate uncertainty and the possibility of evasions, yet, at the same time, without so many rules as to restrict free development and expansion.

Models and Organisation.

The sport of aero-modelling is no different to any other in its need for proper organisation, and this need was felt so long ago as 1910, when the society known as the Kite and Model Aeroplane Association, then the largest club interested in model aircraft, found it imperative to seek official recognition from the Royal Aero Club of Great Britain, and obtain powers to control the proper conduct of model competitions and record attempts throughout the country in order to counteract certain malpractices which were being indulged in by some less scrupulous competitors.

Post War Development.

The advent of the Great War unfortunately suspended the activities of the K. and M.A.A., and though an attempt was made to revive it after the cessation of hostilities everyone was so war-weary that the attempt failed.

In 1922, however, a band of "model aeroplane" enthusiasts revived another pre-war club, known as the London Aero Models Association, and this eventually grew rapidly under the able guidance of its officers and Mr. A. E. Jones, its first secretary, until it reached the the position of the premier model aero club in the country. It was then felt that its sphere of operation should extend beyond the confines of the London area if it was to assist in the revival of the model aeroplane movement, and the club was renamed The Society of Model Aeronautical Engineers, negotiations being opened with the old K. and M.A.A. for the acquisition of its many assets in the way of cups, trophies, etc. In this it was successful, thus becoming the legal successors of the K. and M.A.A. and the owner of the valuable trophies which had been accumulated before the war.

Official Status.

With many attractive trophies being competed for in open competition, the need for proper control of these contests was again felt, and the Royal Aero Club was approaching with a view to obtaining for the S.M.A.E. similar controlling powers to those granted to the K. and M.A.A. before the war. After satisfying the Royal Aero Club on the soundness of the constitution of the S.M.A.E. and its rules, the Royal Aero Club agreed that the S.M.A.E. should become the body controlling model aeronautics in Great Britain under their ægis.

A National Body.

This sequence of events brought the S.M.A.E. to the stage where it ceased to be a local club and transformed it into a national society bringing with it three important duties; firstly, the development of the model aeronautical movement throughout the country; secondly, the conduct of model flying in this country on sound and safe lines; and thirdly, the maintenance of British model interests in the international model movement.

The Development of the S.M.A.E.

Having due regard to the limited funds in the movement and at its disposal, it was felt in the first instance that the best way of stimulating the development of model aeroplane flying was to encourage sound competition by making the contests for its trophies as open as possible.

This scheme was adopted and proved successful, but, owing to the lack of organised provincial clubs, in the first stage these competitions were perforce held in the London area. When the movement in the provinces had grown to dimensions which justified it, the S.M.A.E. immediately instituted the decentralised competitions which enable all provincial clubs to compete simultaneously for the leading S.M.A.E. trophies on their own ground, thus extending the interest of their members and providing them with an increased incentive to turn up regularly at the flying meetings. This incentive has lately been added to by the allocation of the Plugge Cup as a national championship cup, based on the results gained in the decentralised contests throughout the season.

Some of the trophies are still competed for as centralised contests, but these are few and of a special nature, which renders decentralisation impracticable. These include, of course, the Wakefield Cup Team eliminating trials and those for the King Peter Cup.

The Venue of Primary Contests.

From time to time the S.M.A.E. has received requests to hold these important events somewhere in the Midlands, the persons making the request nearly always being under the impression that this will simplify the travelling problem and make things much fairer for everybody, as the travelling distance will be approximately the same in all cases. Actually, when one goes into this question carefully this proves not to be the case, owing to the fact that the railway systems of this country all converge on London, and thus make it easier for the *majority* of people to reach London than any other part of the country.

In addition, the question of organisation arises, and it is much more simple to organise these contests in the London region, where the very necessary personnel and equipment are available, than to do so in the provinces, where a large percentage of both personnel and equipment would have to be imported from London or other local clubs.

Actually the S.M.A.E. has held some of the Wakefield contests away from London; several at Halton, and one at Warwick, and it was its experience at the latter venue in particular which has been the deciding factor in holding subsequent important contests in the London district.

A break away from this decision will, however, be made this season in the case of one of the centralised petrol model contests, which will be held at Cranwell Aerodrome, Lincs., in an endeavour to assist the power-driven model enthusiasts of the North.

Reconstitution.

The introduction of decentralisation in connection with the S.M.A.E. contests coincided with its reorganisation as an association of affiliated clubs, each of which has an equal share in its organisation, as distinct from a club composed of individual members, as it was originally. All the clubs affiliated now have an equal representation on the Council, and can exert an equal influence in its affairs.

The geographical position of some of the affiliated clubs has, however, prevented the regular attendance of their representative at Council meetings, owing to questions of cost, and the system of proxy-delegates in such cases has not always proved entirely successful, since no proxy-delegate can possibly function as effectively as an actual member of the club.

In addition to this the number of affiliated clubs now approaches the 150 mark, and it is becoming increasingly difficult to house a Council meeting of this size, to say nothing of handling it and preventing the discussion from becoming too protracted.

The Area Scheme.

In view of this the S.M.A.E. at its last annual general meeting, approved of the institution of an Area Scheme, in which the country will be divided into a number of areas or districts, in each of which the clubs will be grouped and expected to co-operate on matters affecting model aeronautics in that area. Each area group will be entitled to one representative on the S.M.A.E. Council, who will have voting power in accordance with the number of clubs forming his group. Full details of the area scheme, including the proposed areas, will be in the hands of all club secretaries by the time these lines are in print, and the Council of the S.M.A.E. ask all clubs to get into immediate touch with the other clubs in their area with a view of forming their area councils and electing their representative on the S.M.A.E. Council, so that this scheme can be put into operation with the least possible delay.

By grouping the clubs in this way it is felt that they will be brought into closer contact with each other, to the general improvement of the movement, since they can then discuss their local conditions more readily, and at the same time contribute towards the expenses of sending a representative to the council meetings of the central body.

It must be remembered that the S.M.A.E. is a group of clubs governed by the clubs themselves, and that it is in your own interests to see that you are properly represented on the Council through the Area Scheme.

Competition and Record Rules.

Regarding rules for competitions and records, the S.M.A.E. has evolved a set of sound regulations covering both of these aspects of model flying, which includes the famous fuselage formula, which is now in almost universal use, and has even been adopted by the F.A.I. for their regulations covering international competitions and records.

For the benefit of those who are not familiar with the history of this formula, we would point out that it was produced by the S.M.A.E. in order to prevent the construction of models with freakish proportions which, while perhaps advantageous from a model point of view, would be quite useless when translated into a full size machine.

No one will deny that it has had the desired effect, or that its influence has been beneficial to the movement as a whole.

Petrol Rules.

In addition the S.M.A.E. has laid down a set of rules for the safe flying of petrol models, which it is sincerely hoped *all* petrol model enthusiasts will comply with, whether they are members of affiliated clubs or not.

It is surprising the number of owners of petrol models who fail to realise the need for these rules or the reasons for their institution.

Petrol models, by reason of their size and weight, to say nothing of their high speed propeller and inflammable fuel, are more prone to inflicting damage to persons and property than are rubber-driven models. *It is, therefore, logical that more care should be exercised in the conditions under which they are flown.* Due to inexperience or thoughtlessness, this additional care is unfortunately not always exercised, and it is to protect the petrol model flyers themselves that the S.M.A.E. have drawn up their rules, and to obviate the possibility of official interference with the progress of petrol flying, such has occurred in America, where indiscriminate flying of petrol models brought about an official ban, which was only lifted after involving the movement in great trouble and expense, and forcing them to accept rules which are almost identical to those formulated by the S.M.A.E.

It must be remembered that the civil laws of this country concerning damage to persons and property are much more severe than those of America, so that the situation is more acute here, and it behoves every flyer of petrol models to exercise the utmost care, particularly when flying on spaces to which the public have access.

The International Aspect.

Years of patient work on the part of the S.M.A.E. has succeeded in establishing the Wakefield Cup as the premier international model aeroplane trophy and the most popular international event.

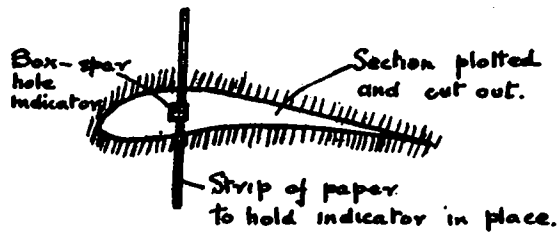
The contests for this cup have been instrumental in cementing many international friendships, and in spreading international goodwill amongst model aeroplane enthusiasts all over the world.

The gratifying success of the team sent to Yugoslavia for the King Peter Cup further helped in establishing the prestige of British model flying, which it is hoped will be maintained during this year's contest.

The F.A.I. rules governing models have in the last few years undergone extensive revision from the impossible

A PHOTOGRAPHIC METHOD OF COPYING WING SECTIONS ACCURATELY

By EDGAR W. PULSFORD, B.Sc.



THE making of wing-section templates for the ribs of tapered wings presents some little difficulty if it is to be done accurately. Many of the popular methods of obtaining the set of graduated ribs are inaccurate, and so the following method was developed. It involves the use of a photographic enlarger, which every aero-modeller will not possess, but owing to the popularity of the hobby of photography there will probably be at least one to be found in the possession of some member of the aero club of which the enthusiast who wishes to try the method out is a member.

The first thing to do is to make a stencil for projection by the enlarger. This may be done by direct photography of some large diagram of the section taken direct from a book or drawn out in Indian ink on white paper. An alternative method, which is always used by the writer, as it is quite as accurate and much quicker, is to obtain a piece of thin opaque card and to plot on it from a table of ordinates a small diagram of the wing section of such a size as to be able to go into the plate-carrier of the enlarger. When the outline has been traced it is cut out by means of a very sharp knife, and the rest of the card is trimmed to go into the enlarger (between two sheets of glass if necessary). Then the enlarger is set up and an image of the hole in the card is projected on to the easel. To check the work so far it is advisable to project on to a large diagram of the wing section and to make sure that the image fits the diagram. If all is well the positions for taper spars to pass through the ribs may be marked by sticking across the hole in the stencil a very narrow strip of paper to which is attached a small rectangle of card to represent the cross-section of the spar. This is usually done for central box spars, but not for leading or trailing edges which are easier to make parallel.

To obtain the lengths of the ribs a piece of lined paper is taken, and along one of the lines the length of the largest rib is marked off, and then on another line, as many lines away as there are ribs to be made, the length of the smallest rib is marked off, and then tapering lines are drawn connecting these marks, and the lines are numbered boldly so as to be visible in the red light of the dark room. Where the tapering lines cut the parallel lines of the paper will show the lengths of the various ribs. This piece of lined paper on which now are the lengths of all the ribs to be made is used on the easel of the enlarger and the image is adjusted to fit the various lengths in turn. These images are projected on to a piece of bromide paper (the writer uses the cheapest doubleweight glossy paper he can get) and the orange cap of the enlarger removed to expose the paper. The length of exposure is not important as long as sufficient is given to give a good dense image on development. A whole-plate piece of paper is barely sufficient to get images of all the ribs used in making a Wakefield wing, and two sheets are more than sufficient. Of course, the paper is suitably marked and moved after each exposure so that the images do not overlap.

When all the exposures have been made the paper is developed in any developer handy, fixed, washed and dried in the usual way. If the drying is done in front of the fire it may be completed in about ten minutes without damage to the print. Then each section, which appears as a black shape on a white background, is cut out and numbered, and also the holes for the taper box spar are cut out with a sharp knife or a diamond-pointed balsa tool. If doubleweight bromide paper has been used there will result a durable set of wing sections for a taper wing, or any one of them may be used to cut ribs for a parallel wing. To trace the outlines on to balsa the writer always uses a fine fountain pen, as a pencil often does not seem to give a sufficiently clear outline.

The above method has been used successfully, and does not take as long as the reader might think. Indeed, it has been found possible to make the stencil, to expose and process the print for all the ribs of a Wakefield type wing, to dry the print, cut out the patterns and a set of ribs all in one evening, say four hours' work. And there remained the set of patterns for future use.

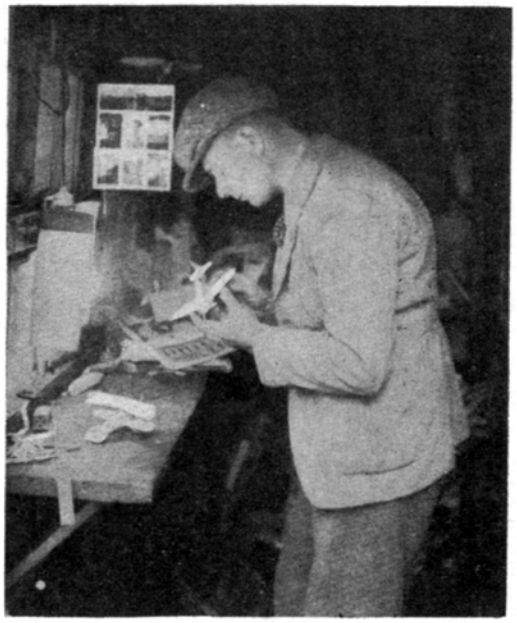
THE S.M.A.E. AND MODEL AERONAUTICS.—*Continued.*

set of rules first drawn up. This improvement has largely been due to the close co-operation of the S.M.A.E. with the controlling body in France who, generally speaking, hold similar views on the technical side of model aeronautics. At the last meeting of the F.A.I. it was proposed that a set of special rules governing the control of model flying should be drawn up instead of continuing the application of the rules which were drawn up primarily for the full-sized aircraft. This proposition received the warm approval of the S.M.A.E., and was eventually passed by the Council of the F.A.I., so that it may safely be said that the model aeroplane movement shows signs of taking its proper place in international aircraft matters at last.

Finally, the S.M.A.E. exists for the sole purpose of fostering model aeroplane flying and guiding its development on sound lines. It is a democratic body, run by the clubs affiliated to it, and it is, therefore, hoped that every club in the country will become affiliated, and thus do its share towards the development of the sport of model flying.

THE BEGINNER

By HECTOR COLE



THIS is the story of how I came to take up aero-modelling. I have always been interested in anything to do with aviation, but somehow, until recently, never thought about building model 'planes. And maybe this will catch the attention of others who, like myself, unconsciously put down aero-modelling as a boy's game. Well, I am thirty-three, and have passed away many interesting hours at this fascinating pastime.

The beauty of the whole thing is that it costs so little to try your hand at it; and if you find you don't care for it, you're practically nothing out of pocket. But let me explain how I started.

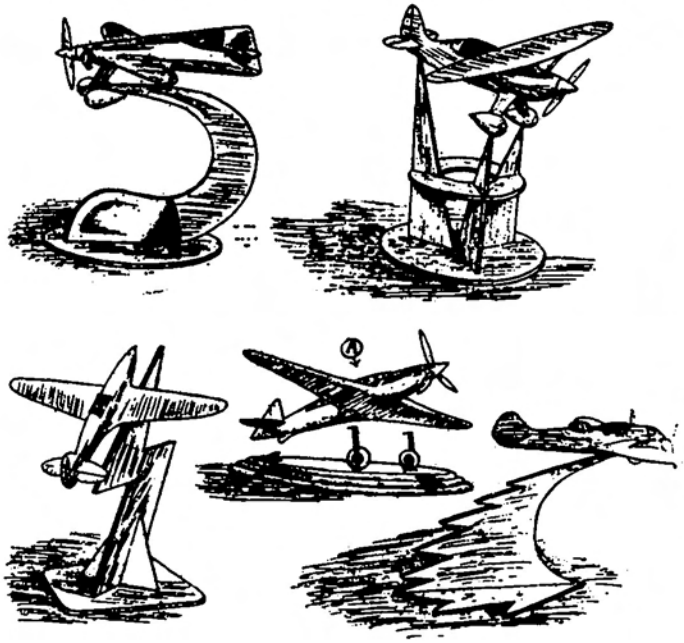
I wonder how many of you chaps who read this have ever experienced that sinking feeling when the " gaffer " comes along and explains he's sorry but, owing to slackness in trade, etc., they will temporarily have to dispense with your services. That is what happened to me some time ago.

Soon it became quite a problem as to how to pass the long hours away—how to occupy one's mind on something interesting. Most hobbies require some outlay, and when a fellowing is " resting " funds are too low to exploit them.

One day I was looking through a flying magazine, and came to some model construction advertisements. Casually I glanced at the pictures. Many times had I looked at these pages, but, apart from sub-consciously admiring the photo of the finished models, they had received no consideration. This time, however, the thought ran through my head: " By gum, these models are good!—must be O.K. making them—wouldn't mind having a go myself —why not? "

And so the idea was born. The kits were so cheap. I glanced down the list. " Ah, here we are, an S.E.5, an old favourite of mine."

A couple of days later the long package arrived. Luckily I have a " den " (a lean-to hut in the yard of the house), to which I retired to start operations. It wasn't long before I was busy carving away with an old razor blade, shaping the fuselage, etc. All too soon it was finished. It was hardly an exhibition model, but not too bad.



I decided to get some more materials. The next move was to weigh up just what I would require. Finally I sent to one of the model supply firms for some 2 in. by 3 in. by 3 ft. lengths of flat strip balsa of different thicknesses: $\frac{1}{16}$ in., $\frac{1}{8}$ in., $\frac{3}{16}$ in., $\frac{1}{4}$ in. Also a lump of block balsa, a strip of bamboo and some cement. The whole lot, including carriage, came to less than 5s. And there is enough to make many 8 in. to 9 in. span models, and will take some time to use up. As for designs, etc., there are many plans of solid models in the various flying and model aero mags. But personally I found that it is very interesting to design my own. For instance—copy, as far as possible, some brand new plane which is still being tested and has just been photographed; or something original, or perhaps a hybrid; for instance, Hawker fuselage for Loire gull-wings and American undercarriage. Quite an international mix-up.

After the balsa and stuff arrived I started on my second attempt, and perhaps a few details might interest.

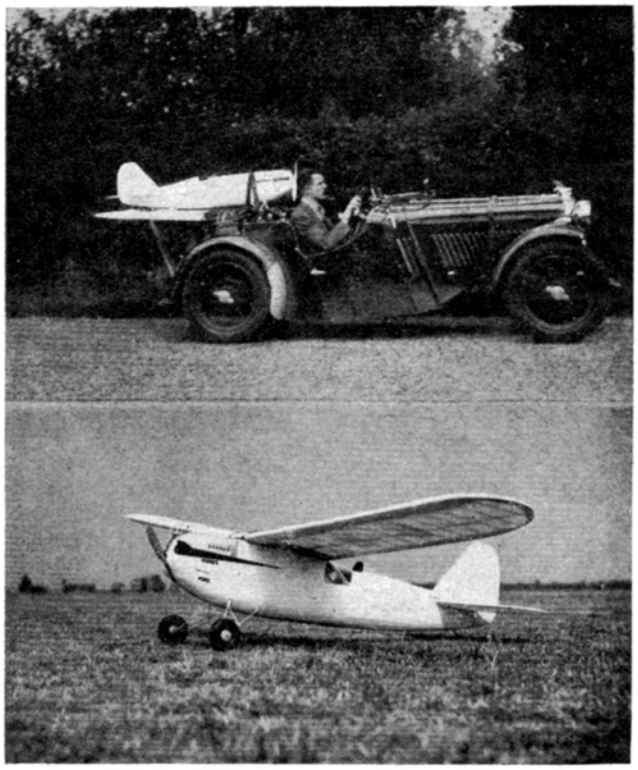
Number two was a rough copy of the Howard Hughes speed 'plane. It has good lines, in spite of the huge engine on the nose, and although I was " green " at the game, it was quite easy to build.

The engine cowling was made up of two pieces of balsa, the front from $\frac{1}{4}$ in. strip and the back of block. The circle which was cut out of the front piece to make the opening was carved to represent an engine and put back. The undercarriage was also a problem. The ordinary retractable kind are ugly, and pants look clumsy. However, it had to be one of the two, and I decided on the fold-up style.

The rest of the 'plane presented little difficulty, and she was soon ready for the paint.

Well, that about finishes my little biography, so I'll sign off. Happy landings!

And what do you do with your solid models when they are finished? This is what I do—mount them on stands, as you see here. I use thin whitewood, or, when I can get them, cigar boxes—given a coat of varnish, they look really good.



PETROL PARLEY

By J. C. SMITH
Hon. Comp. Sec. S.M.A.E.

HAVING read last month's number of this journal and noted that small, reliable petrol engines, and kits into which to build them, are so easy to obtain and so simple of assembly, I feel sure that many of you who have not hitherto possessed a petrol-driven model will without doubt very soon make amends.

These few notes are therefore written with a view to pointing out to the unitiated precautions to take and matters to consider.

To insure yourself against possible third-party claims is perhaps the most important matter of all, as the owner of a petrol model becomes the owner of a faster, heavier—and, unless handled with due care and discretion—a more dangerous model than a rubber-driven one. Not only dangerous to life and limb, but dangerous to the hobby of model aeronautics as a whole. It is not necessary to repeat the highly coloured reports which have appeared in the national Press of simple incidents; but such incidents, if repeated in a like form often enough, can have but one result—the complete barring of model flying, A pessimistic outlook, perhaps, but let us run no risks.

You can insure through the N.G.A. (or through an insurance company direct, if you wish to hold an individual policy) and so obtain this necessary protection.

The next step is to register your model with the S.M.A.E., who, after many years of experience, have drawn up a set of rules (recently admirably described as " safeguards "), the sole view of which is to safeguard this hobby, which is the very life-blood of so many of us.

Certain insurance companies—and the N.G.A., for that matter—issue marks, which must be affixed to models. Do not confuse these marks or transfers with those of S.M.A.E. registration, which must be fixed in addition.

Your insurance and registration complete, you will now have to consider a flying ground from which your model can be flown. All grounds used must be authorized by the S.M.A.E. This authorization is often a matter of formality, because some grounds are in every way suitable. Others are entirely the reverse and might very well prove to be that *coup de grâce* of model flying we all fear.

Many experienced owners of petrol models may possibly react argumentatively to this matter of ground authorization, but why, if so confident that your ground is suitable, delay obtaining official confirmation?

Grounds proposed to be used by unaffiliated clubs and non-club members can, by application, be certified as suitable by the S.M.A.E.

A word now to ye owners whose club has no facilities for flying petrol models, or who have no club of their own.

The writer learns that some have on occasion, without reference to officials of clubs responsible for the use of authorized and suitable grounds, visited such grounds and flown models. Perhaps they did not know whom to approach, although the S.M.A.E. handbook gives secretaries of all clubs, and a line to any one of them will bring a courteous and helpful reply.

In connection with this point, the Hayes and District Club advise that they are holding an open day for petrol model enthusiasts on May 21st next, at Fairey's Aerodrome. The idea is a good one, as it will give an opportunity for unattached members and members of affiliated clubs who have no suitable ground to enjoy a good day's flying and see many other machines. The only stipulation is that machines must be fully insured and registered. An idea well worth repeating by other clubs with good grounds.

With a view to making arrangements as simple as possible for competitors in the next national petrol model competition, the *Flight* Cup, the writer visited Cranwell recently, at the kind invitation of W.O. Gutteridge, of the Cranwell (R.A.F.) Model Section. The Cranwell Aerodrome, on which the event will be held on June 11th next, is ideal for the purpose. It is the first occasion in recent years that an S.M.A.E. centralised contest has been held outside the London area. The trouble that the home club are willing to take, and the help they are freely offering to make the event successful, are very gratifying, and it is hoped that a large entry will result, and justify the organizers' work and worry involved.

Although hardly the subject of these few notes, a few details of arrangements already made should not be amiss.

First, good news to caravaners. You can be accommodated either on the 'drome or a short distance away, but those intending to pitch camp must notify W/O Gutteridge, 18 Cranwell Avenue, R.A.F., Cranwell, Sleaford, Lincs, from whom they will receive full particulars. To those travelling by road: From the north, make for Newark and take road to Sleaford, at which town direction signs will be in evidence.

From the south, take the Great North Road to Colsterworth, turn right immediately under the railway bridge to Ancaster—thence by the signs.

From the east: To Sleaford, and then by the signs.

From the west, to Grantham, and then via Ancaster—Sleaford road until signs are met.

From the south-west, to Newark, and then as from the north.

Train times:

From London (change Finsbury Park), King's Cross:
7.28 a.m. 9.46 Peterborough 10.28 Grantham.
10.10 a.m. 11.39 ,, 12.25 ,,

From the north:
Leeds 11 a.m., York 11 a.m., Doncaster 11.48 a.m., Grantham 1.16 p.m.
Via Nottingham (Vic.):
12.12 p.m. 12.56 Grantham.

Buses will be at Grantham Station to meet the 10.28 from London first, and the London 12.25, Leeds, Doncaster, etc., 1.16 and Nottingham 12.56 will all three leave Grantham by bus together.

Refreshments will be available throughout the day on the aerodrome at very reasonable prices.

So much for the *Flight* Cup arrangements. Like income-tax, rules are a necessary evil, we all agree, but to ignore them finally brings unhappy results. There comes a time (as our Editor found recently) when failure to study the rules leads to disqualification (now for the blue pencil!). His mistake was that he started his engine by way of test, contrary to the rules.

A few reminders now, to go over before each of the remaining petrol model competitions. Check up your insurance to see if it is still in force. All N.G.A. petrol members are insured until the end of January, 1940. *Some others the writer knows have policies which are nearing expiry.*

(1) No push whatever is allowed in any S.M.A.E. R.O.G. contests. On this point it was interesting to observe that at the Frost contest held by the Hayes and District Club last year, where a push *was* allowed, two or three competitors did more harm than good by applying too vigorous a push. The best flights undoubtedly were made when models were allowed to gain speed under their own power.

(2) Flights are timed from release of model, so adjust your time switch last of all, but *don't forget it.*

(3) In the Bowden event the rules do *not* allow engines to be started by way of test after models are taken to the examination surround, and

(4) No repairs or fitting of spares is allowed—penalty, disqualification. After each flight models must be examined by judges.

A last word to competitors in all events: Listen for announcements. Do not enquire of those around you what instructions were given. If you did not hear yourself, enquire direct at the control. A competitor missed the Bowden event last year because he failed to take his model to the examination surround within the announced time limit.

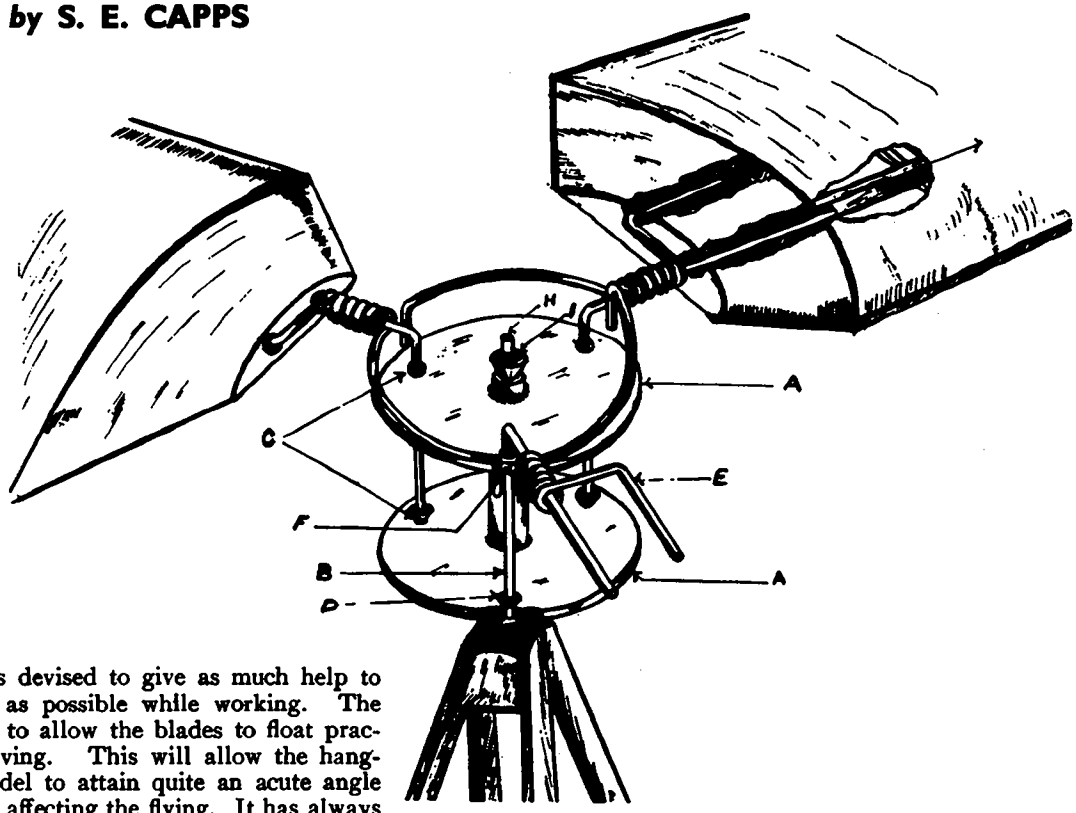
Go to it, ye petroleers! Make the air hum! Check up insurances, registrations, time switches and electrics.

In your hands lies the fate of this newest branch of our wonderful sport-cum-hobby. Safeguard it to the best of your ability.

The best of good luck, happy contacts, and remember the N.G.A. motto: "Fly with care."

A FLEXIBLE AUTOGIRO ROTOR HUB

***Designed by* S. E. CAPPS**



THIS rotor hub was devised to give as much help to the rotor blades as possible while working. The construction is such as to allow the blades to float practically free while revolving. This will allow the hanging fuselage of the model to attain quite an acute angle from the upright before affecting the flying. It has always appeared to the writer that the rigidity of the rotor blade fixing to the fuselage has an effect on the revolving of the blades if the fuselage is blown by a sudden gust of wind when out of the vertical, when it appears to slow up and stall.

This effect is definitely not noticed while using this new hub. The hub is not complicated, and is cheap to construct. A is turned from duraluminium rod with centre hole drilled to suit 18 S.W.G. spring wire. Arms B are formed from 20 S.W.G. wire, and are located in the hub through suitable holes spaced equidistant to take the three, four, or the two-blade rotor, as the builder desires. The writer's is three. The holes are C in the top and bottom flanges. Those in the top flange are drilled 1-64 in. larger than those in the bottom. Arms B are retained in place by the conical washers D, and are free to move about.

The outer arms E are made from 22 S.W.G. spring wire, and are wound so as to be a tight fit on arms B, one end being formed as at E and the other bent round to act as a stop to prevent any undue swinging of the blades. There should be a space of $\frac{1}{16}$ in. between the end and the next arm, as at F. The slight play in the holes C allow arms B carrying the blades to lift up at the tips, which gives the whole rotor a flexible coning angle, and allows through rocking backward the incidence on advancing blade to increase slightly, and to decrease as blade retards.

The $\frac{1}{16}$ in. play between arm E and the next allows the retarding blade to increase the speed until it is arrested suddenly by the stop on next arm. In doing this it gives a sudden impulse to the advancing blade, and is itself helped in turn by the blade following it.

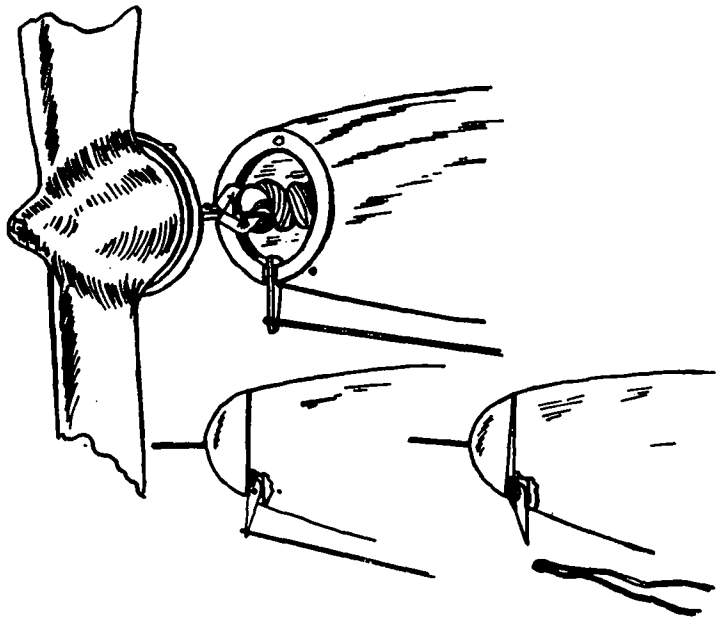
This appears to impart to the rotor a more positive rotation than is so with all blades fixed to the hub. The forked arms E allow blades to be removed for transport. The rotor head is mounted on the pylon by an 18 S.W.G. spindle, and is prevented from becoming detached by the conical washer I, which is soldered to centre shaft. Arms E are made a spring grip on arm B, and this will allow the incidence to be varied by movement up or down. The advantage of this type of rotor hub over the more common rigid type is, in the opinion of the writer, that the conning angle of the rotor, being flexible up and down through an angle of approximately ten degrees, removes from the rotor the drag imposed by the fuselage being in fixed relation in uneven weather conditions.

The retarding blade definitely increases its speed while retarding, from which the writer assumes that the speed of the rotor as a whole is helped in rotation. This in practice appears to be the case, as the rotor when held in a flying position will start itself and maintain its revolutions in a very small airflow. The flow from the airscrew will send it round considerably faster than is required.

Finally, this type of head or hub is preferred by the writer, if only for flexibility in cushioning bad landings. On the writer's model, which it is hoped to describe shortly, the R.O.G. flights obtained have been more consistent with this hub than with any other that has been tried, and it is hoped that this description may be of help to some who have had difficulty in this direction.

A MECHANICAL PARACHUTE RELEASE

By S. E. CAPPS



PERHAPS, out of all the various performances of model aircraft, dropping a parachute is the most realistic. To see the small bundle drop from a machine, the flare open, and the little figure swaying at the end, has always greatly impressed the writer. Some aero-modellers have developed this branch of the sport to a very fine art and a complete understanding of the machine, the folding of the 'chute, and the release at the right moment is essential to a good drop. But there are some who, much as they try, do not seem to have the best of luck, the writer among them. In most cases observed, on other models as well as his own, it is mostly the release mechanism that has been at fault. Either one gets a premature drop when only a few feet up or mechanism refuses to open until model has almost landed. The number of times that this happened with the writer's model was sufficient to make most fed up with 'chute dropping, and leave it alone altogether. Still, if we alter things, we usually get different results, and the writer was inclined to try this first. The release gear used on this model was that most used, the rubber band stretched from somewhere at the rear of the fuselage, and clamped between the noseblock and the first former, the resultant tension of the airplane motor pulling on the noseblock being enough to hold this band in place until the model reaches a good height, when the tension should be relaxed by the motor running out and allowing the band to slip from its place, and so freeing the folded 'chute. This sounds simple and reliable, but one small drop of rubber lubricant on the nose end of the band ensures an early drop, and tightening the band to overcome this results in a late drop. The writer soon began to try other ways, and one described here stands out as the most reliable up to the time of writing this. The device and its operation can be followed by careful study of the sketch, and is very simple and cheap to make. This release takes the shape of a small lever, and is fitted to the front former in a slot prepared to take it, being secured in place by a small pin, on which it is allowed to swing backwards a certain amount. The shape of this lever and the positioning of the swivel pin-hole is such that a small amount of movement on the short end from the hole produces a much larger movement on the longer end. Thus it will be seen from this that the noseblock pressed on the smaller end very tightly by the pull of the airplane motor will force the other end of the lever forward slightly.

This is all that is required to hold a stretched rubber band definitely in position, and in a much more convincing way than squashing it under a greasy nose-block. Further, the tension on the rubber band need not be anywhere near as tight as required the other way. In operation it can be clearly seen that the tension of the rubber band on the longer end of the lever exerts a greater pressure on the smaller end, where the resistance rapidly becomes less as the motor approaches the end of its power run, with the result that the lever slowly gives backwards until it reaches an angle sufficient for the stretched band to slip off. The action is definitely more sure and positive in working conditions than the other method, as the movement between ends of the lever are such that a very small but certain movement of the noseblock will force it forward and alter the angle considerably. Under full pressure of motor the lever should have a slight but distinct inclination forward at its extreme end. The sketches will make this clear. With this arrangement the writer can obtain on most occasions nine good drops out of ten, which he considers good enough. Should any modeller take the trouble to make one and fit the idea to his model, let him take good care to build in to his model correctly and put best workmanship into its construction, and not just anyhow. He will be amply repaid by consistency of its operation. The writer has tried many ideas concerning model airplanes during the last twenty-five years, and has found that many are spoilt through being hurriedly built. The lever on the writer's machine is cut from a piece of 18 s.w.g. sheet steel, and is smoothed all over to save the rubber from any sharp edge or burrs. The pin is also 18 s.w.g. piano wire, the drill for which was made from the same material.

FAIREY'S AERODROME—"On the Great West Road"

By C. A. RIPPON

Fellow of the Society of Model Aeronautical Engineers

AT this time of the year, when attention is focused so much upon the Great West Aerodrome of the Fairey Aviation Co. Ltd., at Heathrow, Middlesex, a few miles to the west of London, it may not be out of place if we consider for a while how the main activities of the model aeronautical world became centred at " Fairey's."

When, in 1933, I suggested to responsible people the idea of running a mass rally of aero-modellers, many objections were put forward, principal among these, that no one could find the time to run it, and also there was no ground in the vicinity of London at which such an affair could be run.

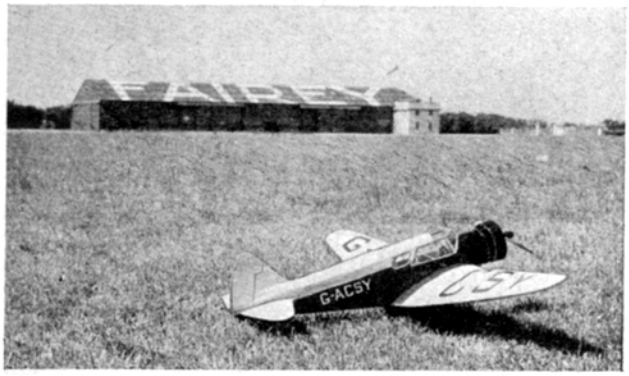
The first objection was soon got over by my own club, the Northern Heights Model Flying Club, then in its second year, deciding to support the scheme, and we eventually decided to hold the rally at Epsom Downs, at which delectable spot we had already held a field day. However, after arranging the date to which a fair amount of publicity was given, we suddenly found out that our proposed date came on what is popularly known as Derby Sunday, that is, the Sunday before Derby Day, and that the Downs would, therefore, be overrun with people not at all interested in model 'planes.

This put us in a quandary, but it so happened that I accepted an invitation by Mr. H. York to join a party to watch a petrol model fly at Chobham Common, in Surrey. (A petrol model really was an event in 1933). We duly arrived there, and the model, a beautiful Comper Swift, powered by about a 25 cc. engine, was duly " run up," but the surface, mainly of gorse and bracken, was impossible, and Capt. (now Major) C. E. Bowden suggested that the model should be taken to the ground on which he carried out his own experiments—The Great West Aerodrome, at Heathrow.

We duly arrived there, and I saw at once that it was the ideal spot for our Northern Heights Gala, and decided that I would write Mr. C. R. Fairey as soon as I got home, which I did. As I had had the pleasure of welcoming Mr. Fairey to the old Blackheath Club before the war, to our competitions, I felt sure he would give the matter his kind consideration, and he did. A letter arrived back giving us full permission and his blessing on our gala.

This was the very first time the aerodrome was used for any model 'plane fixture, and I was able to obtain permission also for the S.M.A.E. to hold the Wakefield Trials and Contest there the same year. Mr. Kenworthy, of Manchester, won the Wakefield Cup at Fairey's that year. An interesting model competing was Mr. Gordon Light's, of U.S.A., which was flown by Mr. Pelly Fry.

Since 1933 many interesting events connected with the model aeroplane movement have taken place at Fairey's, in fact, the name Fairey's is synonymous with model flying. Six Northern Heights Galas (this year's is the seventh) have taken place, and, in addition, we have welcomed teams from fourteen countries, and all types of models have been flown there.



A few years ago, at one of the Northern Heights Galas, a splendid picture of a flying scale model "Airspeed Courier," built and flown by Mr. Finch, of the Brighton Club, was taken, showing the big shed with the name " Fairey " right across the roof. By something of a photographic freak, the model 'plane and the shed came out in a fair perspective to one another, and made one of those perfect pictures. The picture, by the way, was taken by Mr. Head, the President of the Brighton Club, and we got Mr. Head to do a coloured enlargement, which became the subject of a special presentation to Mr. Fairey himself, as a mark of respect and appreciation to him for his fine sportsmanship and public spirit. It was presented at a Northern Heights Gala, and to this day hangs in his office.

One hesitates to contemplate too much on the possibility of being denied " Fairey's " for our important national and international meetings, but the fact remains that people are inclined to take " Fairey's " too much for granted, and it is quite common to hear members of London clubs say that they are going down to "Fairey's" to test this or that model. Fairey's has now a resident club—The Hayes and District—and they very ably carry on the sporting traditions that we associate with the aerodrome, inviting and welcoming aero-modellers down there whenever possible, but I do say here that we should do nothing to harass them in any way, and make their position difficult, and I appeal to all aero-modellers to find out for themselves first if it will be convenient for them to " butt in," and if so, to see that they religiously obey the rules instituted by the Hayes Club for their own protection, and for the protection of our most valuable privilege, the Great West Aerodrome.

As the one who first obtained this privilege for the movement, I feel morally responsible, and I do think that people should remember that, after all, Fairey's is a private aerodrome.

I should like to conclude by expressing my warm thanks to Mr. Fairey and his staff, and all members of the Hayes and District Model Flying Club, for the help and welcome which has always been extended in the past to members of the Northern Heights Model Flying Club and its friends.

SOME NOTES ON DOPE—

By "NITRO"

AMONGST the things which aero-modellists seem to take very much for granted, perhaps dope is an outstanding example.

When we buy a tin of dope we are mainly concerned with its " pulling " properties, and should it give a drum-like tautness to the paper or fabric over which it is applied, our critical faculties appear then to be satisfied.

However, there is far more than that in the make-up of a satisfactory model aircraft dope, and although the property of " tightening-up " is important, there are other considerations which must have careful attention.

An elementary dope can be made from celluloid, amyl acetate and acetone, and this will really " pull " . . . but it will not be eminently successful, because first of all it hardens the tissue and makes it very brittle; secondly, unless the proportions of acetone and amyl acetate are very carefully adjusted, the dope will " blush " considerably unless used in a very warm room.

It is, in fact, a job for expert chemists to produce a dope that can be mishandled, as only aero-modellists know how, and which will still give a good account of itself; so spare a thought for such friends the next time you dope a repaired wing on the flying field in a " Scotch mist " and a 20 m.p.h. wind.

Dope is one of the most critical products modern science has had the " pleasure " of producing, and even the slightest miscalculations in manufacture can cause it to go wrong . . . the " cavalier " fashion in which we add anything that bears the name " thinners " to dope we wish to dilute is another thing we do that would give any chemist grey hairs to witness.

Thinners are not just anything that smells of " pear drops " or of acetone. . . They also need to be specially made, and if not suited to the dope to which they are added, well . . . anything might happen.

This article does not suggest that you should use this or that brand of dope, but it is pleaded that whatever dope you *do* use, then give it a fair chance by using the thinners specially prepared *for* it.

Another thing . . . store dope in well-closed tins or bottles, and keep in a cool place . . . and if you have some dope that has evaporated until it is a thick jelly, don't try to restore it by adding thinners . . . you *may* be lucky, but on the other hand it is *very* doubtful.

Furthermore, when you have pinned down a wing, and doped it, don't remove it from the board the moment it " looks " dry . . . many instances of wings warping are caused through builders being in too great a hurry over the dope job.

Dope is " deceitful stuff," and often when it appears to be dry it is just at the stage when it is about to show you just what it *can* do in the way of really " pulling." So always mistrust it, and if it takes ten minutes to look dry, then leave it alone for half-an-hour, and you will be safe.

When applying dope, it is better to " flow " or spray it on the tissue or fabric. Never brush it on sparingly, and never let the brush " drag " . . . and two " thin " coats are better than one " thick " one.

Damp is also an enemy of dope, and should be eliminated if at all possible. Excessive heat is " no good " either, as it will cause the dope to blister and very possibly slacken when the temperature drops.

You may think some of these remarks and hints are unimportant, but wrong treatment can " upset " a dope *without you knowing anything about it!* . . . and then what do you do? . . . you blame the dope and the manufacturers! So you see, that it really *does* pay you to have some little knowledge of the " tricks " that dope can " play " on you.

To be forewarned is to have a perfect dope job, so always treat the stuff with respect, and if there are directions on the label . . . follow them!

Coloured or pigmented dopes are usually intended for their primary purpose of decorating models, and their tightening properties are seldom outstanding.

As a matter of fact, it is not altogether satisfactory to combine good shrinking and good colouring features in one dope, unless the pigment is gained by aniline dyes, which are soluble and thus transparent.

However, dopes of this nature are not commonly used, as the effect most often desired is a dense colour which is opaque when dry.

Such results, of course, require the pigment used to have considerable " body," and therefore if the dope vehicle in which they are incorporated is a strong " tightening " medium it may cause cracking of the doped surface when dry; and this, of course, is not desirable.

Therefore, always apply coloured dope over a surface which has previously been treated with ordinary " shrinking " dope, or, if it is a very light model, water dope the tissue first; the finish will then lack nothing in appearance, nor will the tissue sag.

Extra strong dopes, as used on petrol 'planes covered with silk.

These dopes differ from ordinary model dopes in regard to the solid content, or proportion of pyroxylin or celluloid used in the manufacture.

Generally speaking, the higher the solid content the stronger the " tightening " properties . . . otherwise, the make-up and treatment is the same as for the " weaker " types.

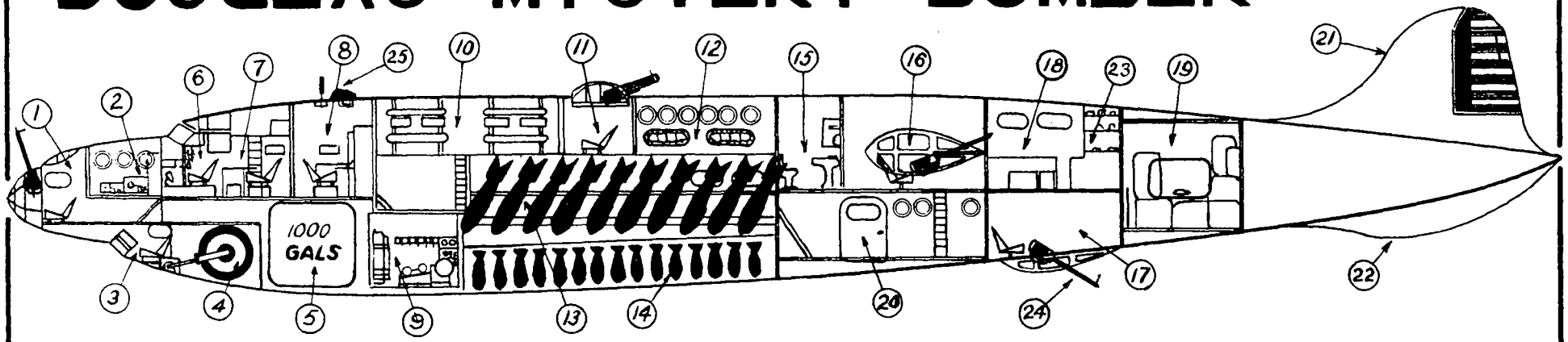
When applying dope on silk, it may be found that considerable quantity, in the form of many coats, of dope is required to give a satisfactory finish, and as dope is not one of the cheapest of commodities, perhaps a hint on using same more economically would not come amiss.

The writer has had considerable success when doping silk, by first treating the silk to a coat or two of a thin solution of glue size.

This process adds little to the weight, but it does appear to assist the rather difficult task of producing a perfectly doped silk covering on a model; and, what is more, less dope is needed.

It is important to be quite sure that the sized silk is perfectly dry before applying the dope, but the little extra trouble is quite worth while.

DOUGLAS MYSTERY BOMBER



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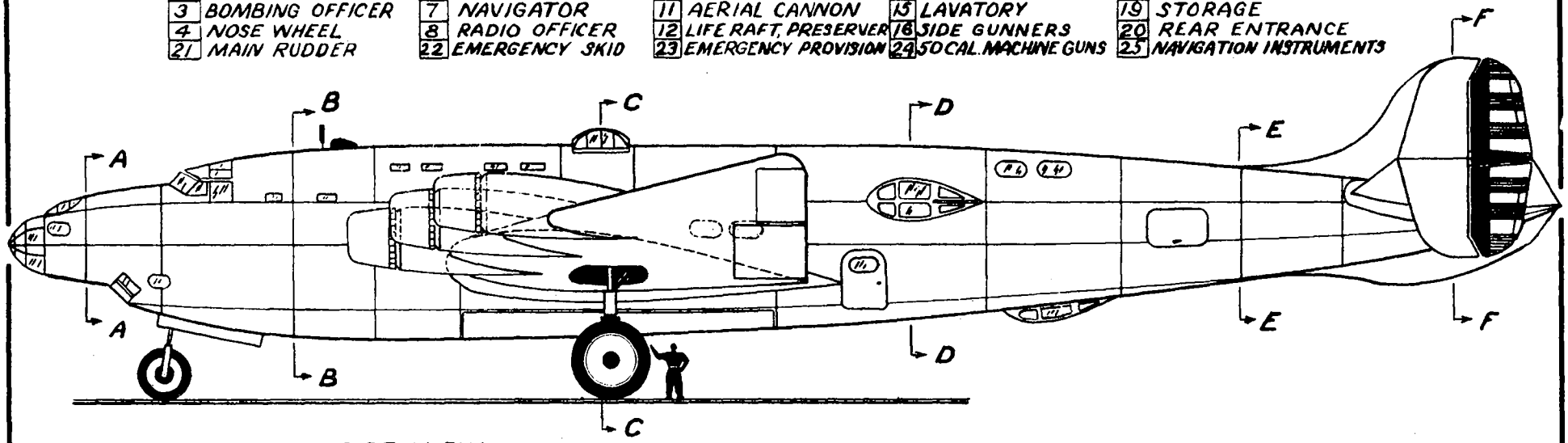
2 GYRO, INSTRUMENT EQPT	6 PILOT, CO-PILOT	10 SLEEPING QUARTERS	14 FRAGMENTATION "	18 GALLEY
3 BOMBING OFFICER	7 NAVIGATOR	11 AERIAL CANNON	15 LAVATORY	19 STORAGE
4 NOSE WHEEL	8 RADIO OFFICER	12 LIFE RAFT, PRESERVER	16 SIDE GUNNERS	20 REAR ENTRANCE
21 MAIN RUDDER	22 EMERGENCY SKID	23 EMERGENCY PROVISION	24 50 CAL. MACHINE GUNS	25 NAVIGATION INSTRUMENTS



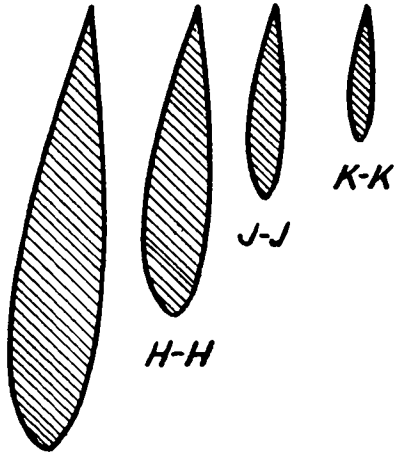
SIDE VIEW

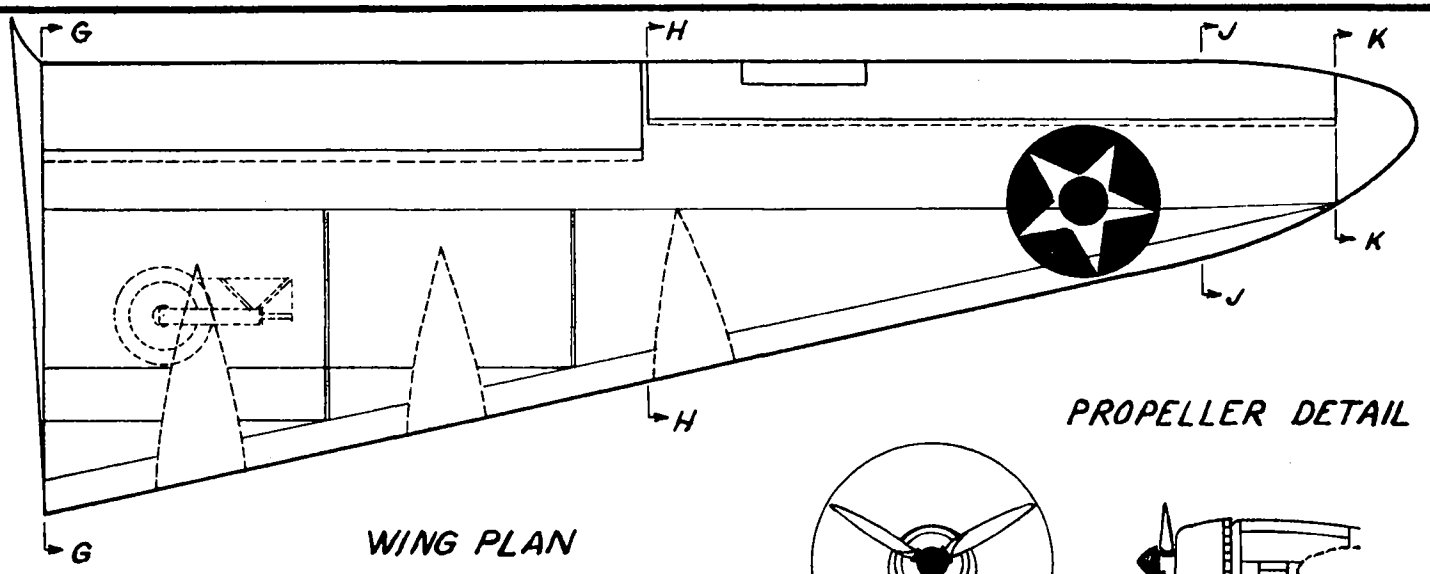
THE WORLD'S LARGEST AIRPLANE

WING SPAN - 250 FEET CREW - 12 MEN
LENGTH - 165 " BOMB CAPACITY - 20 TONS
WEIGHT - 80 TONS RANGE - 6000 MILES
POWERED BY SIX 2000 HORSEPOWER MOTORS

SHEET 1

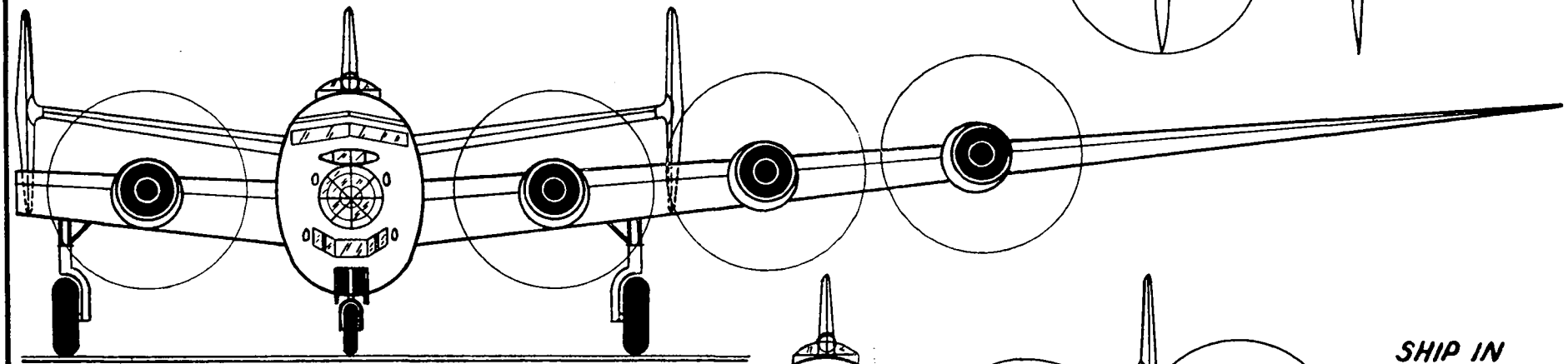
ROBERT M LARREN



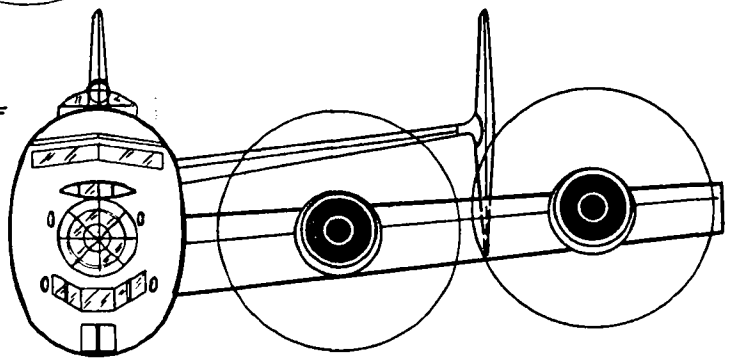


WING PLAN

PROPELLER DETAIL



FRONT VIEW



SHIP IN FLIGHT WITH LANDING GEAR RETRACTED

SHEET 2

ROBERT C LARREN

SCALE

JOB DROPS A BRICK

By ARTHUR MOUNTSTEPHENS

THERE was promise of sun in the day. The faint coils of mist which rested lightly on the Downs were evaporating. It was going to be warm and dry, and there were going to be no thermals on this day of competition for the coveted cup.

As Job Wood had said, when I watched him putting the finishing touches on Jan Stewar II, his new 'plane, we only wanted a no-thermal day to put the cup right in our pocket. I knew that he was right, for we had built the 'plane together, and it had the longest motor run ever.

We had agreed that I should call for him on this day of days, and here I was, breathing the nutty air, and dreaming of the things to come, as I walked with eager stride towards Job's house.

There was something familiar, and not a little charming, about the family procession I saw coming towards me, when I turned into Job's street. The woman in her neat dress walking proudly beside the pram; the baby joyfully waving the long, purple balloon; and the boy exploring the leaf-strewn gutter for conkers, made a pretty picture. The only dejected figure was that of the man pushing the pram.

I couldn't help feeling sorry for the man, but the mood of the rest of the party fitted my own. Surely it was a morning to thrill the breast of any human. Then I spotted the fact that it was the Wood family. Those feet could belong to nobody but young Amos Wood, and when I saw Job's face, I was sure. They halted a little as I approached. Job let go of the pram, and Mrs. Wood took it.

" What's this mean? " I asked of Job when his wife was out of earshot.

It seemed that Job had a plum in his mouth when he mumbled, " I can't come."

" Can't come? " I replied. " But, man, this is *the* day, *our* day. The lightest of zephyrs sport across the Downs; there are no thermals; Jan Stewar II ise waiting, and . ."

Job groaned. " I know. It's a grand morning, but it's the wife's Aunt Hannah's birthday."

" Boadicea's Grandmother's birthday," I said.

" No. Aunt Hannah's birthday," he replied. " Aunt Sadie promised that we should go over for the day. Said she didn't know it was a competition day."

Well, I knew that had blued it. Aunt Hannah is the star in the Wood firmament. On no account can she be denied.

" Go in and get the model," said Job, handing me the key, " and see what you can do about that record."

He looked apprehensively along the road towards Mrs. Wood, who was standing impatiently at the corner. "Wait until we're out of sight," he said. " You know why."

I did know why. I know Sadie Wood. Her ménage is a sacred edifice into which the feet of strangers never step without her permission and supervision, if she can help it. But she can't always help it, being married to Job.

" Can't you make some excuse, and get away from Aunt Hannah's? " I suggested. " Our event isn't until three."

" I'll do my best," he muttered, and was gone.

I waited for the party to disappear, and then went into Job's house and collected the model. As I walked towards the Downs, I felt that somehow or other I should see Job at the meet. He's pretty tough.

Our event had started. Job had not turned up. There were no thermals, and nobody had yet topped the minute. In two or three minutes I would be sending Jan Stewar off and showing them what I could do. Suddenly I heard the sound of panting. An agitated hand grabbed my elbow.

" Job! " I ejaculated. " How did you manage it? "

" Just sheer good luck," he replied.

" Good luck? " I echoed, as I began to put the strain on Jan Stewar's rubber.

Job looked a little pale. He took his handkerchief from his pocket. " Yes," he said. " I broke a tooth on Aunt Hannah's joint, got the ramping toothache, and came out to get it taken out."

Well, that's the first time I've heard toothache called good luck. " I hope you have had it out," I reproved.

Job supplied the answer by dabbing his mouth with his handkerchief. His tongue appeared to be exploring his mouth tenderly.

I wagged a forefinger at him. " And I suppose you will get back to Aunt Hannah's in time for tea? "

" Yes," he said miserably, as he took the model from me and stroked it.

We were called for a few moments later, and I shall never forget the way that model poked his nose skywards, bit into the air, and set about that record with inexorable intensity.

He swung across the Downs, came back at us, and went away again. After four minutes he was still going strong. The cup was ours.

" I shall have to be off, now," said Job, looking at his watch. Then Jan Stewar II decided the same. He went right out of sight behind a distant copse. I ran after him. Job's footsteps thudded beside me.

" Leave it to me," I puffed

" No! " said Job, firmly.

" How about Aunt Hannah? " I managed with my second breath.

" Blow Aunt Hannah! " said Job irreverently.

It was hard going, and when we had legged it across two ploughed fields, we lost sight of the model altogether.

Then Job's mouth started to bleed a lot, and he said he'd have to get back to the dentist. I went with him. The dentist was out. The chemist wouldn't touch it, and the doctor said that the chump who took it out ought to put it right again. But after a good deal of consideration the doctor decided that he couldn't send Job away. He dressed it, and made Job stay there for an hour or so.

It was a good job we did stay, for Job needed the doctor's attention an hour later. After all, you can't have teeth out, and go chasing across ploughed fields with impunity.

But Job remarked, as we left the doctor's and went out into the dusk, with the rain falling heavily, " Coming here has given me a jolly good alibi for Sadie and Aunt Hannah. They were sure to have fished out that I had been to the Downs."

" Would it have mattered so much? " I enquired.

Job regarded me solemnly. " Mattered? " he said, " why it would have been regarded as sacrilege, going out on Aunt Hannah like that, just to fly a toy and make excuses about teeth into the bargain."

" Toy? " I said.

" That's what Aunt Hannah calls 'em, and she'd never forgive Sadie if she knew that I'd been flying while she was blowing out her candles."

" There's one good thing," I remarked. " We did remember to put your name and address on the 'plane, and somebody might bring it back."

Well, as regards an alibi, I could see Job would want one when we got to his house, and saw Sadie, Amos and the baby waiting outside in the pouring rain. I never saw such a crestfallen party. Even the balloon had sagged. I compared them mentally with the happy trio of the morning.

" Where have you been? " demanded Sadie. There was a glint in her eye, and an inflection in her voice that presaged trouble.

Job was silent. She turned a frozen stare to me. The trouble was I'd still got their key in my pocket. That was going to take some explaining.

" I met him coming from the dentist," I began, and then gave a résumé of the afternoon's events. I even managed to transfer the key to Job's hand without Sadie seeing it.

Sadie relented then. She even expressed compassion for Job as we went into the house, and he set about preparing mouth washes.

I didn't see Job for a day or two, but went round one evening, when I knew that Sadie would be out. As soon as he asked me in, I knew that something had gone wrong, but his chagrin was inexplicable, as he pointed weakly to Jan Stewar II, resting on the table.

" Well," I said. " Everything in the garden's lovely now."

Job looked down his nose mournfully.

" Where did you have to go to get it? " I asked.

" I didn't. It was brought," he replied.

" Glad to hear there's still some decent people in the world," I said as I settled for a smoke.

" Oh, yeah? " said Job. " You ought to have heard how she went on."

" She? " I asked.

" Yes, Aunt Hannah! " said Job, giving the cat a malicious jab with his toe.

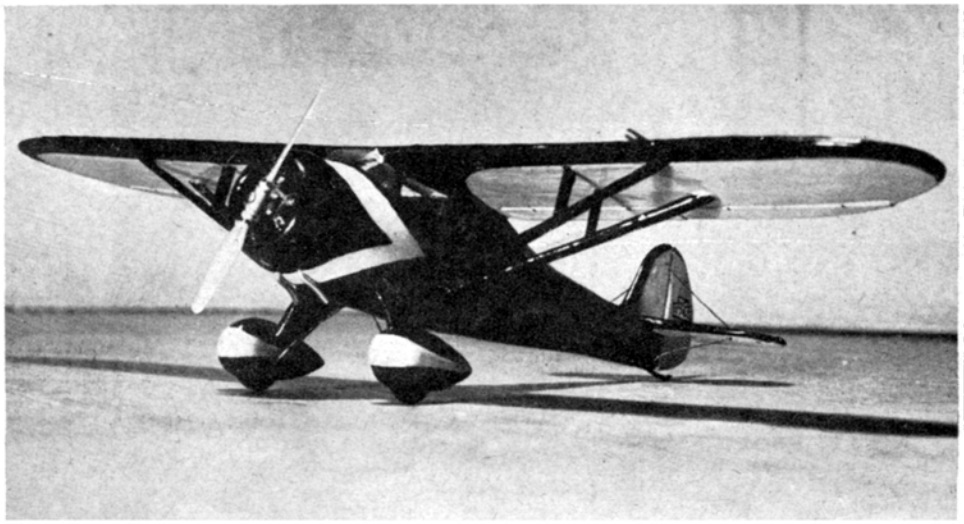
" I can't see how she . . . "

Job interrupted me with an impatient gesture.

" Yes. The blooming thing pitched in Aunt Hannah's garden just as her party was closing down."

SOLID SCALE MODELS

By B. CARVER



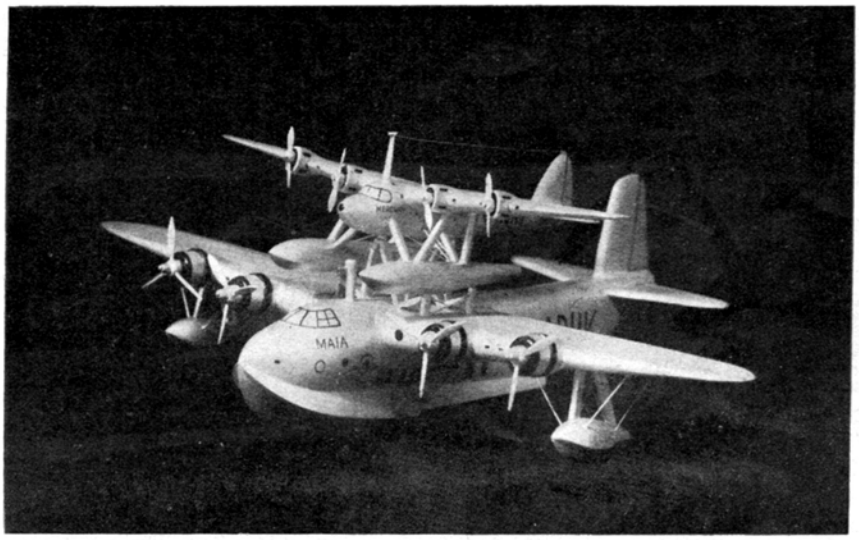
THIS month we have an excellent photograph of a model by Mr. D. H. Elmes, of Ilford. Most readers will recognise it as a faithful model of the Monocoupe 90A, but, unfortunately, they will not be able to appreciate from the photograph just how fine a model it really is, although its realistic lines and excellent finish will be apparent. The model is to ¼ inch to 1 foot. The fuselage is hollowed from block, with walls 1/32 in. thick! Airscrew is hand-made from aluminium. Internal fittings include bucket seats made from leather and fibre. The five cylinder radial engine is filed from ebonite. Rather remarkable details are: Complete set of controls, including flap control; instrument panel, compass, etc. Mr. Elmes seems bent on making some of us rather ashamed to admit that we were personally responsible for some of our models. I learn that Mr. Elmes is now busy on a model of the D.H. Dragonfly, to the same scale, and I look forward to receiving photographs of this model in due course. Thanks a lot, Mr. Elmes, and we look forward to your further contribution. You certainly have something to be proud of in your workmanship.

Further details of the above model's " set up " will be of interest. The model stands on a hollow base, which conceals a small electric battery. In the rear of the fuselage is a small pea-bulb which is connected to the bottom tail bracing wires. These wires make contact with a small cradle on the base, and this cradle is connected through a switch to the concealed battery. When the bulb is lit, the bulb is quite invisible, and the interior of the model is illuminated with a diffused light. This is a very neat arrangement, particularly the way in which the bracing wires have been utilised for contact purposes. The lighting of the interior is well worth while when so much painstaking detail work has gone into that interior —work which would not be clearly seen without some form of internal lighting. I anticipate that the maker of this model is going to " get places," if patience and skill count for anything in this crazy world. Particularly, as he informs me that he is only a newcomer to " solid " work.

Ideas like the above are worth passing on to other modellers, and it is hoped that any reader who has anything good like this will not be shy of giving other enthusiasts the benefit of his " brain waves." Interchange of ideas and notions helps to keep interest keen.

A most useful material for the constructor will be found in that kind of modelling wax which is softened by warmth and afterwards sets quite hard. With a little experimenting you will be amazed at the variety of uses to which this material readily lends itself. Wheel-spats, fillets, turrets, even small propellers can be quickly fashioned from it, and will prove much quicker to make than by using either plastic wood or attempting diminutive wood-carving. Always keep a sharp look-out for possible new materials and improved methods of construction and, when you find something really good, let the other fellow know about it. I hear rumours of a special new " filler " for balsa, which is likely to be marketed soon, and, if the makers' reports are correct, this will prove of great value to those modellers who are mainly interested in our aspect of the hobby. So many constructors fail in this matter of finish. If a model is badly finished, it is worthless. No amount of accuracy in the actual modelling is worth anything, if it is eventually spoilt by poor finish, and anything which will help us to obtain good surface, in a minimum of time, is sure to be appreciated. I have seen an example of finish obtained by this filler, but have not yet had a sample of the preparation.

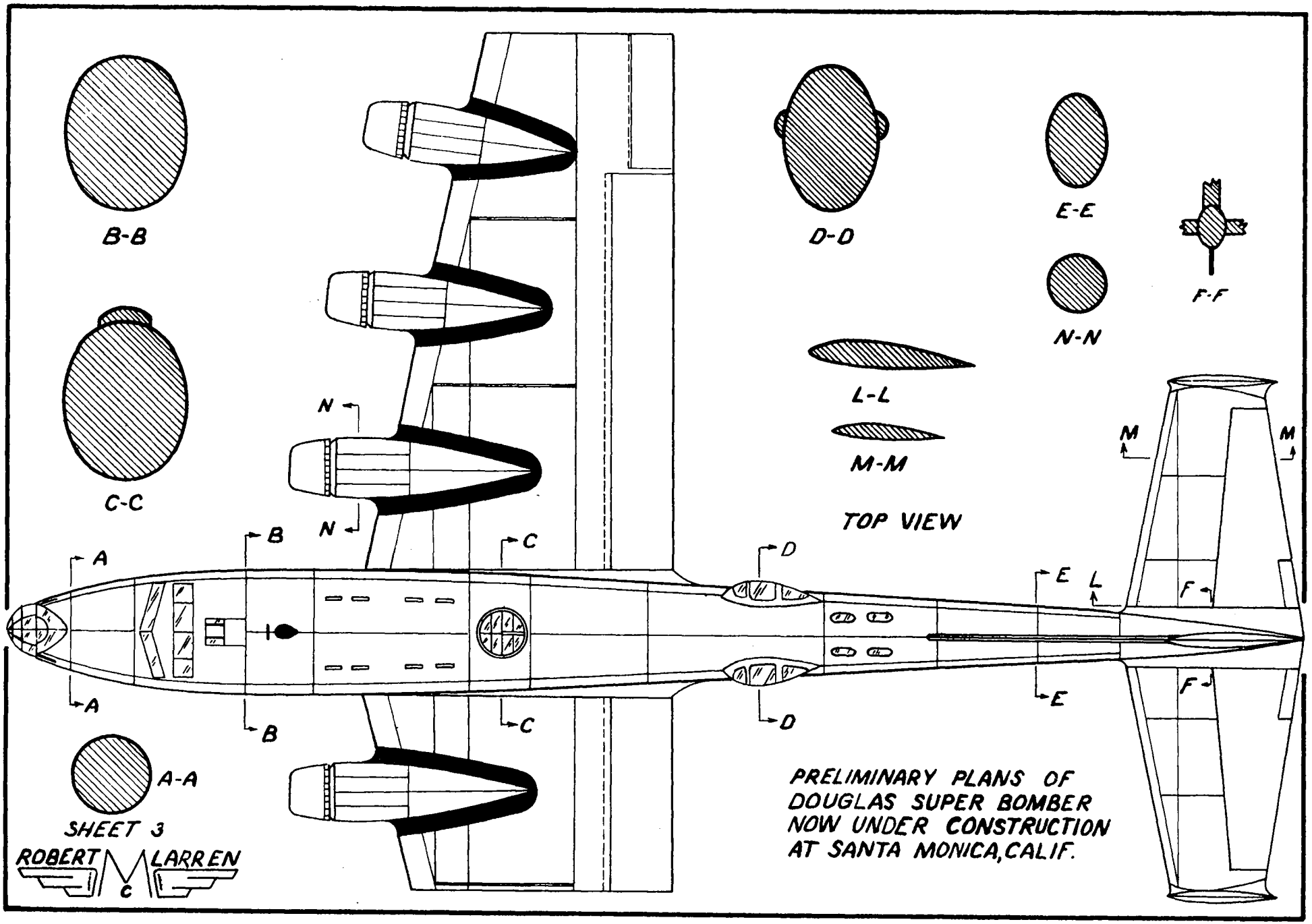
Quite recently I was asked what was the purpose of the cross-section drawings which appeared on scale plans, which are provided with " solid " kits? I should have thought that these details were of self-evident use, but I trust you will forgive me if I explain this point for the benefit of any newcomers who may be in doubt, like my questioner. The cross-section drawings indicate the shape of the fuselage or aerofoil (wing). The drawing is a representation of what you would see if you could cut right through the fuselage or wing at right angles to its longitudinal axis. The position at which each cross-section is drawn is indicated by key letters or numbers by cross-section view, and at corresponding point on side view of fuselage. The correct use of such drawings is to cut a thin cardboard template of one-half of the section shown. Cut templates for each section and then check your modelling of the component by placing these templates on the surface of the wood from time to time during the actual shaping or modelling operation. The templates should be cut, of course, to fit around the outside of the sectional drawing. This method will ensure accuracy of contour, which is very important indeed if



Here is another fine example of the solid scale modeller's art—the Mercury-Maia composite aircraft—built by Mr. A. E. Hughes, of Sutton, Surrey. Scale is 1/144 full size, and the two models took 125 hours to build.

your finished model is to be realistic in appearance and the small trouble of making the template will be fully repaid. Never let impatience tempt you to " skip " this bit of labour.

I have had many interesting letters from individual modellers in all parts of the country, often enclosing photographs which have gone to adorn these pages, to the benefit of readers who, I am confident, have appreciated the excellent workmanship displayed. Now, I would like, in addition, of course, to these individual correspondents, to hear from club secretaries of " solid " scale activities amongst their members. I know that many clubs pay due attention to this phase of the movement, and often run special competitions for this type of model. Will club secretaries be good enough to write to me, c/o THE AERO-MODELLER, giving details of such activities, and details of outstanding or prize-winning models together, if possible, with photographs? There is no valid reason why club reports should be confined to flying activities. I should like to pass on to readers, through the medium of these pages, any interesting news and details of club " solid " activities. The reports should prove every bit as valuable and interesting reading as the reports on the other activities. Solid modelling has real and distinctive value, and it is to be hoped that such reports would serve to quicken interest in this already popular hobby. Will you support me by sending your reports on anything of interest connected with solids at the earliest possible date each month? You will! Thank you!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TOP VIEW
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PRELIMINARY PLANS OF
DOUGLAS SUPER BOMBER
NOW UNDER CONSTRUCTION
AT SANTA MONICA, CALIF.
SHEET 3
ROBERT M LARREN
C

LETTERS TO THE EDITOR —

DEAR SIR,

I am surprised to see that Mr. Towner does not like R.A.F.34 wing section. It is a good all-round section, but seems to have lost popularity, since people began to think that a concave under surface would solve all their troubles. I think the greatest difficulties with flying scale models are stability and weight rather than lift. Now R.A.F.34 is one of the most stable sections obtainable, and I cannot understand Mr. Towner interfering otherwise.

With regard to lift and weight I do admit that it is possible to obtain more lift from a good section with concave under surface, but it sometimes takes more power. From some aerofoil data I have corresponding to a machine with about 18 in. chord flying at 24 m.p.h. I have worked out some figures. These show that for a clean machine R.A.F.34 gives more lift for a given amount of power than Gott.532, a section that is very like R.A.F.32. If the machine has a high body drag then Gott.532 is best. Weight and its distribution seems to me to be the problem, as whatever excess weight there is in the tail you have to add about twice this to the nose to get the C.G. right. In connection with this and stability it is interesting to note that the Moss monoplane, which has been designed to be flown from either front or rear seats without ballast uses R.A.F. 34 wing section.

These, then, are the reasons I do not advise a section with concave under-surface for beginners.

Yours faithfully,
HOWARD BOYS.

DEAR SIR,

I was glad that the subject of " speed machines " was touched upon in your December issue, page 32, and am hoping that the points raised and the views expressed in this letter will help to stimulate interest in this fascinating branch of aero-modelling.

As one of the too few enthusiasts who have worked seriously for the S.M.A.E. competitions for speed, I should like to ask some questions and make a few remarks on the following points :—

I.—*Speeds of 60—75 m.p.h. in America.*

Can anyone please supply answers to the following questions :—

(*a*) Are these speeds officially recorded as in Great Britain? Are they done indoors over absurdly short distances, or in the open?

(*b*) Are they R.O.G. or hand launched?

(*c*) How are they timed?

With regard to (*a*) indoor competitions over short distances are hardly likely to improve the design of model aeroplanes. I feel that, however great the difficulties, models should be flown in their proper element, i.e. in the open air. The general public, too, will never take our model work seriously while we have all this light toy-like tissue stuff floating about.

(*b*) With regard to R.O.G., under S.M.A.E. rules, a model must rise under its own power and fly 50 yards.

Now, an over-powered and under-elevated machine could easily be hurled off shoulder-high, and an effort made to time it as it makes a power-dive over a short distance to earth.

Coaxing it to take off from the ground would be quite another matter.

(*c*) Timing is another important point. A model doing 75 m.p.h., as claimed by our friends, would take 1·4 sec. to cover 50 yards, and an error of 1-10 sec. would cause a discrepancy of 7 m.p.h.

Is a mechanical electrical system used for these tests? If not, the whole thing would be a farce.

II.—*Backwardness in Great Britain.*

With regard to your remarks concerning the inferiority of our " speed " performances, I do not think it is realised that this branch of model work bristles with difficulties.

I think it will be generally admitted that speeds of 30 m.p.h. (approx.) are fairly easy of achievement, as the wing loading is fairly moderate.

Mr. H. E. White and I have often used the following formula, and found it quite reliable in our experiments :

$$S = K\sqrt{L},$$

where S = Speed.
K is a constant = 6.
L = Loading in oz. per sq. ft.

From this it can be seen that a model loaded at 25 oz./sq. ft. will have to attain a speed of 30 m.p.h. before it is air-borne.

The trouble begins when one aims at higher speeds, and perhaps the following details from official performances in speed contests will help to illustrate this :—

Date.	*Model.*	*Speed.*	*Loading/oz. per sq. ft.*
1936.	Mr. H. E. White's " Hornet,"	42·6 m.p.h.	57
1937.	Mercury I.	46·5 m.p.h.	64
*1938.	Mercury II (estimated) ...	54 m.p.h.	81

* Not officially timed.

You will not how rapidly the loading increases as the velocity becomes greater, and here is the reason for the apparent failure of many speed models to " deliver the goods." The speed contest is held once a year only, and if a stiff breeze is encountered a heavily-loaded machine has not the margin of power to ensure its taking off. As an illustration, Mercury II, weighing 5 lb., has flown on several occasions in Broomfield Park in early mornings, when the air was still, but will fail to rise with a following gusty breeze, although her twin rubber motors are providing her with *two horse-power!*

Critics say it is a mistake to build heavy models, but I shall be the first to welcome and congratulate the designer of a light-weight model which will fly at say 45 m.p.h. under existing rules.

Now, Sir, if my letter causes storms of criticism, I feel that I shall have done well. The speed movement badly needs regular enthusiasts who will *build* models, and provides wonderful scope for real skill, besides being such a change from the eternal quest for " thermality."

And what of our past stalwarts? I call to mind Messrs. Bullock, Lines, Willis and Debenham, and others! Cannot we persuade them to re-enter the lists?

R. L. ROGERS.
Northern Heights M.A.C.

THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

Some further Notes on a Council Meeting held on Friday, April 14th, 1939.

A letter from Studiette Handicrafts, in which they offered to supply a " service station " on the field at S.M.A.E. competitions was considered. The Council asked Mr. Cosh to raise various points with Studiettes, informing them that no Press publicity would be allowed if the Council accepted their offer.

The Glasgow Club requested the Council to grant them permission to fly decentralised competitions on Saturdays. This application was not granted.

The Huddersfield Club informed the Council that they had in mind a scheme for Juniors, requesting that these might be classed as sponsored individuals. The Council stated that this would mean altering the constitution of the S.M.A.E., which could only be done at the A.G.M. The request was therefore refused.

The following clubs applied for reaffiliation and were accepted :—

Farnworth	21
West Sussex	37
Leamington and Warwick	20
Oxford	40
Rugby	21
Cranwell	125
Northampton	40
Warrington	15
Birmingham	23
Chelmsford	25
Leeds	29
Bolton	23
Lancs	67
Wellington College	17
Croydon	41
Macclesfield	25
Kingston	23
Bromley	30

Mr. Hawkins announced that the affiliation of S. Smith & Sons Athletic Club (Model Section) had lapsed. As Mr. Cosh had had recent communication with this club, it appeared that the reaffiliation had been overlooked by their secretary. Mr. Hawkins was instructed to rewrite them.

The following clubs applied for ground sanctions for the flying of petrol models :—

Liverpool M.F.C. Luton and District M.A.S.
Northampton M.A.C. Bromley M.F.C.
Brighton and District M.A.C.

These were granted.

An application from the Barnsley Club was considered, but the Council decided that their ground should be inspected.

The Westwood (Yorks) club's request for their ground was not granted. The Council desired to see a map on a reasonable scale.

Correspondence *re* ground sanction was read from the Bristol Club, in which they stated that they were unable to provide a map. The Council considered that, as a matter of courtesy, this should be provided. Mr. Smith was instructed to write them stating that an ordnance survey map could be inspected, and a tracing made at a public library.

Will clubs please note that the following resolution was put to the Council and accepted : " That all applications for ground sanctions must include a map of the proposed flying ground, on a scale of at least 6 in. to the mile.

Alterations and additions to timekeepers were made for the following clubs :—

North Kent.	Hawker.	Worthing.
Blackheath.	Bromley.	Ashton.
Twickenham.	Willesden.	Furness.
Brighton.	Northern Heights.	Dagenham.
Wycombe.	Harrow.	Uxbridge.
Wolverhampton.	T.M.A.C.	Bushey Park.
Yeovil.	Croydon.	

Mr. Cosh pointed out that some clubs were continually changing either their secretaries or timekeepers. He informed the Council that one club had changed its timekeepers four times in six months, and that over forty names in the Society's file had been found to be incorrect, due to changes of which the S.M.A.E. had not been notified. The Press Secretary was thereupon instructed to publish the fact that the Council considered that when clubs appointed officials, those officials should remain in office for at least one year, and that clubs whose personnel was continually changing ran the risk of either being without timekeepers or having some of the Society's letters addressed to the secretary going astray. Further action may be taken by the Council in regard to this matter.

The following new clubs were affiliated :—

Grimsby and District M.A.C. ...	20
Slough and Windsor M.A.C. ...	12
Kettering and District M.A.S. ...	35
Hampton Hill and District M.A.C.	18
Skegness M.A.C.	14
Wirral M.A.S.	12
Gloucester and District M.A.C. ...	20
Bath M.A.C.	19

Rusholme and District M.F.C., with 12 members, were accepted on condition that the word " Manchester " was inserted in their title.

Mr. Houlberg informed the Council that the Secretarial Committee had met, and had suggested various points which might assist Mr. Cosh. They asked that the Council sanction the purchase of another typewriter. This request was granted. Mr. Cosh asked that the following points relating to correspondence be stressed in the Press :

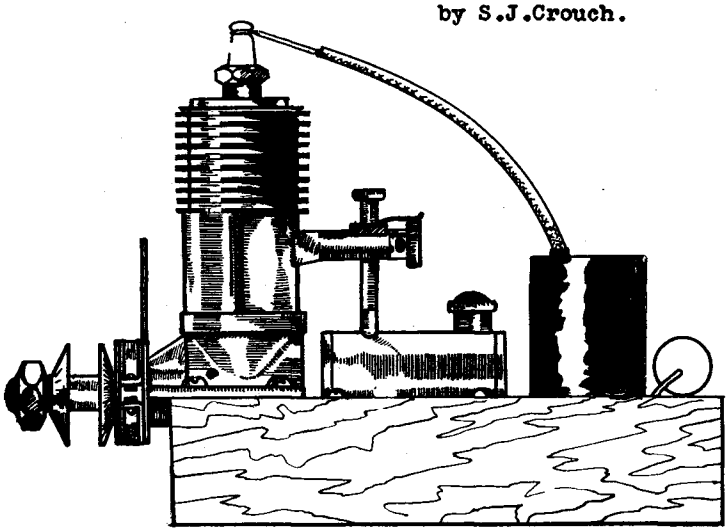
1. That orders for badges should be sent to the Hon. Treasurer, Mr. L. J. Hawkins, Heathview House, Meadowcourt Road, Lee Green, London, S.E.3.
2. All technical queries should be addressed to the Hon. Technical Secretary, Mr. R. N. Bullock, 75 Belmont Hill, London, S.E.13.
3. All matters relating to competitions to the Hon. Competition Secretary, Mr. J. C. Smith, 1 Treen Avenue, Barnes, S.W.
4. All Press matters to the Hon. Press Secretary, Mr. H. York, 23 Tyson Road, London, S.E.23.

Mr. Cosh also deplored the fact that affiliated club secretaries wrote to him with various matters all in one letter. He requested that, if possible, each subject should be dealt with on a separate sheet of paper. This will enable him to pass the business on to the secretary whose duty it is to deal with the matter.

H. York, *Hon. Press Secretary.*

METHOD OF INVERTING BROWN ENGINE

by S.J.Crouch.



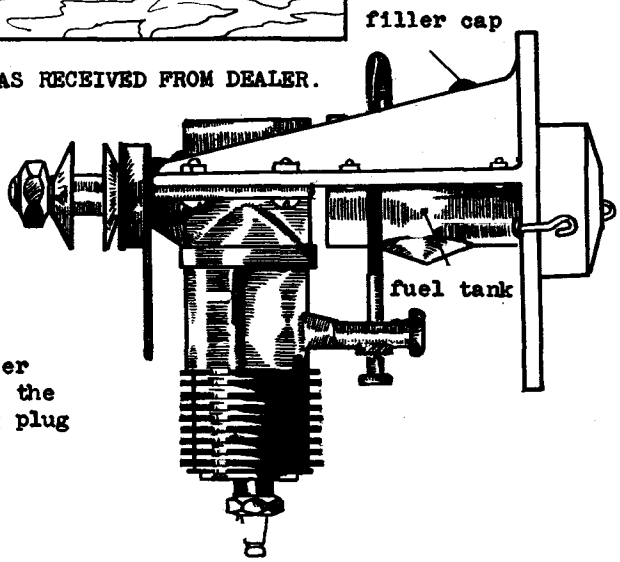
BROWN JUNIOR AS RECEIVED FROM DEALER.

(1) Unsweat joint between jet tube and pipeline - do not disturb pipeline in tank.

(2) Remove tank, shorten it by cutting off one third; re solder filler and end of tank - this is to suit the engine mounting.

(3) Reverse tank so that the filler is upright, the cylinder inverted. Procure a small piece of copper tube - bend to suit - be careful not to kink the tube.

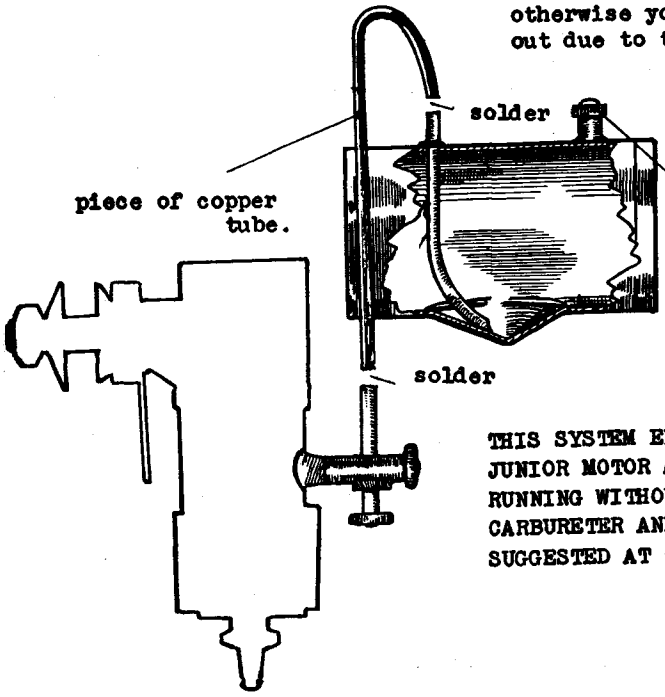
(4) The feed is still maintained by SUCTION not by GRAVITY. A good head of petrol is always at the needle valve due to the syphon effect.



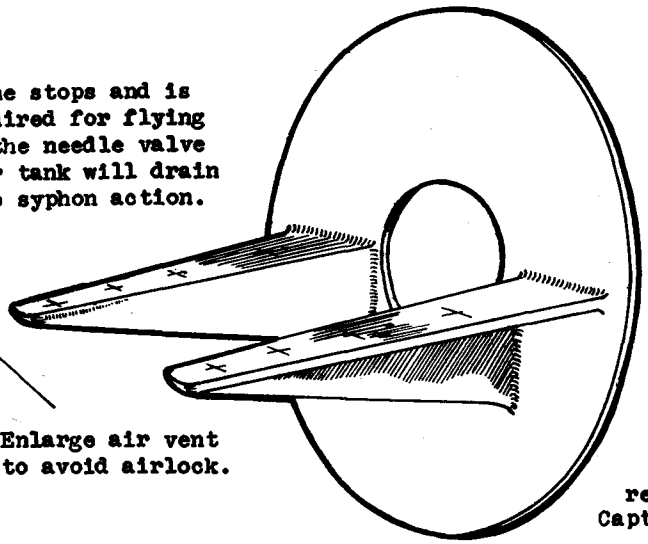
position of engine mounted in plane.

This engine is over two years old and the original sparking plug never oils up.

(5) When the engine stops and is no longer required for flying always close the needle valve otherwise your tank will drain out due to the syphon action.



Enlarge air vent to avoid airlock.



Electron mounting as recommended by Captain Bowden.

THIS SYSTEM ENABLES ONE TO INVERT A BROWN JUNIOR MOTOR AND GET RELIABLE AND CONSISTENT RUNNING WITHOUT COMPLICATED AND EXPENSIVE CARBURETER AND FLOAT CHAMPER AS HAS BEEN SUGGESTED AT OTHER TIMES.

BUILD THIS FINE ROCKET 'PLANE !

FULL-SIZE PLANS GIVEN AWAY FREE WITH THIS ISSUE

By J. R. SINGER CRAIGIE

ALTHOUGH it is the popular idea that aerial transport in the future will be by rocket-propelled machines, very little seems to have been done in this respect in the model field. During the last two years I have built several of these machines, some successful, the others—you can guess the rest! This particular model, however, which can be built for less than two shillings, has proved to be extremely successful. The wing is constructed of $\frac{1}{16}$ in. veener cut to the outline shown in the drawings, the two halves being cemented together to form the dihedral angle. A nacelle of $\frac{1}{8}$ in. veneer is mounted underneath and the whole structure is strengthened with triangular fillets of soft balsa sandpapered to a streamline shape (a glance at the detail sketch will clarify this).

The tail unit is so arranged that the sparks issuing from the rocket fall clear, and, as will be seen, I have utilized outriggers of $\frac{1}{8}$ in. veneer for this purpose, with a spraeder bar of 22 s.w.g. piano wire. The tail-plane and fins are of $\frac{1}{16}$ in. veener with the edges rounded off. A mounting for the rocket is made of soft balsa cemented on top of the centre section, through which pass clips of 22 s.w.g. piano wire. Whilst I am dealing with the subject of this mounting, I hope you will have noticed that thare is a slope on the top towards the nose, this performing the same function as down-thrust on a propeller shaft. If, however, this is omitted, the job is liable to zoom up into a terrific ground loop, at the conclusion of which things are liable to get bent.

As rocket mixtures are difficult and dangerous to prepare unless you have had previous experience with them, I am recommending the ready-prepared type, which may be bought at most toy shops for a penny. If, however, you want something more elaborate, mind you are not served with the explosive type, as coloured stars are apt to be rather superfluous.

With a little care you will find this novel type of 'plane quite easy to fly. To begin with, first set her in gliding trim—a little plasticine in the nose will be found necessary. To launch, you balance each wing tip on an empty bottle (if it has been a hot flying day you will have no difficulty in obtaining these from members of your club), light the touch-paper and stand clear. If you have put the correct down-thrust in the rocket, the plane will climb steeply to about fifty feet, and pull out into a good flat, but rather fast, glide.

In conclusion, do not expect to break any duration records; you are doing pretty good if you get twenty seconds—but you will have the satisfaction of having entered into the experimental field of aero-modelling, and in this model you will have the basis for more advanced types, which you can develop yourself at a later stage.

A SIMPLE DURATION 'PLANE

FULL-SIZE PLANS GIVEN AWAY FREE WITH THIS ISSUE

Developed from an original Design by HOWARD BOYS

No instructional leaflet has been prepared for this model, as the construction follows well-known lines. New readers will find every aspect of this type of construction dealt with by Mr. Boys in his series of articles published in the February, May, June and August, 1938, issues of The Aero-Modeller. A limited number of copies of these issues are available at 8d. each post free from our Leicester offices.

LOOK OUT ! — FOR ANOTHER LARGE SCALE PLAN WITH OUR NEXT ISSUE ! !

NEWS FROM ALL THE CLUBS—By CLUBMAN

Members of the Rotherham Club, very active, and providing good entertainment for the crowd!

WELL, well, well! My " Sid Walker " skit of last month certainly seems to have tickled some of you, and one chappie asks why can't I always carry on in that manner? Do you know, the strain is terrific—and with a mind as weak as mine—well, a little of a good thing must suffice. However, I'm certainly glad to see that many of you appreciate the Clubman's efforts to brighten up this weary world!

Interest at the moment naturally centres largely round the forthcoming Wakefield Trials, and by the time I am chatting with you again, the worst—or should I say the best?—will be known. One thing is certain, we shall have the keenest competition ever this year, and undoubtedly a great team must materialise from the eliminations this time.

One matter I am mindful to speak strongly on is a warning—or plea, if you prefer it that way—to those people who *will* get in the way of competitors with their candid cameras, etc. We know it is a big temptation to you enthusiasts to get an exclusive shot of one of our recognised experts getting his bus away—but just think of the chap himself, keyed up to the nth degree, and cussing to high Hades the blokes who are getting in his way! So, just have a little consideration, fellows, and remember, the competition's the thing—and an enormous responsibility rests on competitors and officials alike. We brought the cup back in 1936, and I am confident that it can be done again, but we *must* pull together in an effort to get the best possible team elected.

Mr. J. C. Smith has put out a request for timekeepers and stewards to function on the two important days, and I would add my plea to his. To run this meeting is a terrific responsibility, and cannot be thoroughly executed without the fullest support and help from all of us—so don't be backward in coming forward you non-competitors—*but*, don't volunteer unless you are confident you are able to carry out your duties in a thoroughly efficient manner. We must have no more complaints as last year!

And so, before leaving the subject of the Trials, may I wish the competitors the best of luck, and may the team be decided on downright performance—and not lucky thermals! And to you all—see you at Fairey's.

We are now getting to a stage where the Plugge Cup competition is taking on an interesting aspect. Three rounds have passed at the time of writing, and the position is gaining in interest more and more. Undoubtedly this innovation has captured the fancy of us all, and the sustained interest is one of the best things that has happened in the competition world.

The Halifax boys are going great guns and have led from the start, but that does not detract from the keenness. There is a long time to go, and many things can happen. Anyway, look at the list here and judge for yourself. Unfortunately, I do not have a full list, and can therefore only give the positions of the leading teams, but I hope to show you the complete positioning at a later date.

Club.	Pilcher	Gamage.	Weston.	Total.
Halifax	110	590	219	919
Northern Heights	69	596	220	885
Lancashire ...	71	588	173	832
Barnes	84	595	135	814
Luton	53	512	213	778
Blackheath ...	25	519	226	770

From a study of the figures given you will see that Halifax led on the first round, and scored third place in both the Gamage and Weston rounds—so they certainly deserve their high position. The Pilcher Cup round was disastrous to many, and conditions generally all through have been atrocious.

Northern Heights have progressed steadily from fourth to third, and then second. Barnes have dropped from second to fourth, whilst Lancs. have regained their third position after a drop to fourth at the second round. Luton have crept up nicely into the picture, and are a menace any time. I can see them pulling up on the Farrow Shield round, their team work being well known. Blackheath have done well to jump from thirteenth position on the first round to sixth, though they have dropped a place on the third round.

A study of the total entries gives a clear indication of the type of contest of popular interest. The Pilcher round for gliders only attracted 89 entries, though the weather had a large effect on this round—but look at the entries for the Gamage Cup—any type! 207. Just shows you, doesn't it? The Weston Cup, for Wakefield models, attracted 82 entries, a sure indication of the interest taken in this type of model to-day.

Before leaving this section and getting on to your reports, may I bring to your notice a special item that I'm afraid is being ignored by certain clubs. It is clearly stated in the S.M.A.E. Handbook that all decentralised competitions must terminate at 7 p.m.—but I know of definite cases where this rule has been ignored. Naturally I am not going to give details, but you can take my word for it that this has been, and is, happening. It is not

fair to those clubs who abide by the rules, and I know of one occasion where a competitor could have finished very well up, and maybe won the cup, but did not return from the chase of his first flight until it was turned the deadline. This, of course, is rank bad luck, but to find that others are not being as rigid in their interpretation of the rules is hardly encouraging. So play the white man, you cads, play the white man!

With which I will get down to my monthly " slashing." If you are inclined to grumble here and there, forgive yours truly, but the number of clubs that have suddenly wakened from their winter's hibernation is amazing, and the number of reports is getting on for double the usual total.

Mr. Warring, of the WEST SUSSEX M.A.S., possesses the most successful model in the club at the moment. A " slabsider " Wakefield type, this machine has put up 5 min. 46 sec., 5 min. 30 sec., and 3 min. 37 sec., and has succeeded in winning the club trophy, Mr. J. Richardson's streamliner placing second, with another " slinky " coming up for third position. Mr. Warring's time was 2 min. 33 sec. average of three flights—which, I opine, is some going! Unfortunately he was unable to complete his three flights in the Gamage Cup event, losing the model in an earlier round.

Miss K. Offord, of this club, is showing great promise with her models, and the ladies' record is expected to receive a severe knock shortly. Petrol models are also doing their stuff, and a good season is looked to with confidence.

A light-weight contest of the EALING AND DISTRICT M.F.C. resulted in Mr. Mawby winning with a time of 100·3 sec., Mr. Potter being second with 67·9 sec. and Mr. Gilbert third with 59·6 sec. These chaps are having some fun dodging a " balloon barrage " on the field, but have fortunately kept clear so far!

The BIRMINGHAM M.A.C. have instituted a system of grading models and flights, with certificates to be gained; also a points marathon, the highest total at the year end gaining for the member the Smyth Trophy.

News from a club this month who have been very quiet in the reporting line lately, but with the appointment of a new press secretary we look forward to hearing more of the WINDSOR (Manchester) M.A.C. The members attended the open indoor meetings arranged by the Lancashire M.A.S., and generally cleaned up the Microfilm Class on each occasion. Ken. Bletcher won first place at each meeting, with Messrs. Hughes, Archer and Pettican also gaining places.

After the competition at the meeting held on March 29th, " Indoor " Bletcher attacked the R.O.G. indoor stick record held by Rushy, and clocked 4 min. 22·5 sec. —a new figure, since confirmed. Evidently spurred by their successes, the Windsor Club is organising an open indoor meeting at Messrs. Lewis's Stores, at which both pole flying and microfilm contests will be held, and all are invited to support this meeting, which is in aid of the Wakefield Fund.

One of the most comprehensive exhibitions of model aircraft in the West Country was arranged by the TORQUAY AND DISTRICT M.A.C. recently. It received a great deal of publicity, and visitors from the larger model clubs in the West noted with satisfaction the developments that have been made in model aviation by one of the lesser known clubs. Well over 300 models were exhibited. Two very well made petrol models were the highlights of the exhibition, and these combined with several Wakefield models to make the show one of real interest to everybody. The cups and trophies belonging to the club occupied a prominent place in the exhibition. The opening ceremony was performed by the Mayor of Torquay (Mr. Charles Price) who commented on the great developments that had been made in flying.

The flying activities of the club have been considerably livened up by the recent fine weather. Mr. T. F. Crudden unfortunately lost his model after an O.O.S. flight of 125 sec. Easily the club's most consistent flyer this year, Mr. Crute, senr., again trumped everybody when he won every competition that was arranged over Easter. A photo is shown of some of the exhibits.

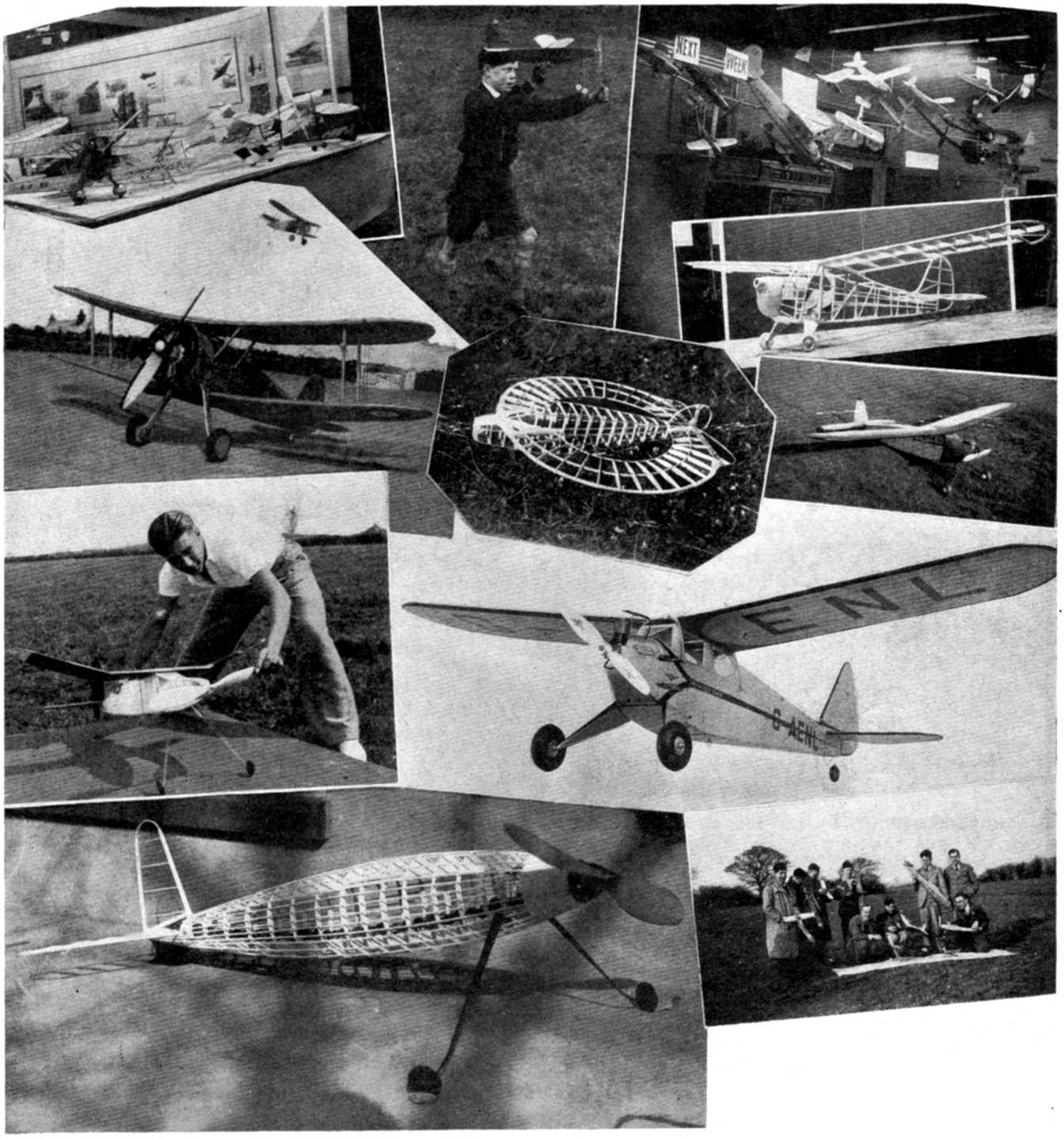
The PARK M.A.L. have also been " exhibitioning," and a most attractive item was the building of a model, with a completed machine on show to give comparison. Also shown was a replica of the first Wakefield winner, side by side with a 1939 " hope," which made an interesting comparison. Mr. Gillett is to be complimented on the amount of work he put in during this show. For those of you who are interested, the *Park Aero News* is available at 3s. per annum, post free (36 copies), application to be made to Mr. F. H. Dillistone at 70 Nightingale Lane, London, S.W.12.

With the weather at last perfect for the Easter holidays, some excellent flying for the time of the year was seen at the MACCLESFIELD M.A.S. Mr. J. G. Eifflaender, who loses his models with monotonous regularity, lost another one on Good Friday, this time breaking his own record for the club of 10 min. 33 sec. with a wonderful flight of 16 min. 30 sec., all this with an under 150 sq. in. model. R. W. Higson had a new model with quite rakish lines and very light weight, which was also lost after some minutes on a windy day. E. Heath, with his parasol wing Wakefield, broke the club Wakefield type record with a good flight of 4 min. 59 sec. This machine has averaged, excluding test flights, about 2 min. 15 sec., which is quite good going.

" Fahsands," of Wakefields and K.P. Gliders, are putting in an appearance in the NORTHERN HEIGHTS M.F.C. Mr. I. W. Hall did best for the club in the Pilcher Cup contest, finishing sixth in the final results and establishing a new club gliding record at the same time. Bob Copland has been doing his stuff once again, as can be seen from a study of the S.M.A.E. competitions.

This club is growing at such an enormous rate—nearly 150 members to date!—it has been decided to obtain new club premises, the new venue being the Argyle Hall, Seven Sisters Road, Holloway, N.7. The first meeting was very successful, with a lecture by Mr. Rigby, a very well-known aero-modellist.

The HALIFAX M.A.C. held a successful bridge and whist drive in aid of the Wakefield Fund, and with cash already collected, a cheque for £5 5s. has been handed to the S.M.A.E. Good going, Stott and Co.—and I'd feel a lot better if another fifty clubs had done as much. The Halifax boys have started the season in fine style, witness the Decentralised Competition results and their position in the Plugge Cup race, and I understand the whole of the membership is pulling its weight well, instead of leaving it to a few. That is the way to get results. Non-flying members are assisting greatly by retrieving models after their cross-country jaunts, and it is hoped to win the Plugge Cup for a northern club for



Top. (*Left*) *A general view of the Torquay Club's stand.* (*Middle*) *Master Philip Lees, son of the chairman of the Halifax Club, releases his model.* (*Right*) *Models at the Worthing Club's Exhibition.*

Next Row. (*Left*) *Mr. A. Wolstenholme's very good set-up for his model.* (*Middle*) *Mr. Martin's circular model, which has recorded 20 seconds, and* (*right*) *the 54 in. span Aeronca built by a member of the Igranic Co.'s Sports Club, underneath which is a 7 ft. span "Miss America," built by another member of this club.*

Next we have Mr. J. Young, of the Harrow Club, about to release his "Korda" model, whilst on the right is the fine-looking petrol 'plane built by Mr. Kennady, of the Newcastle Cub.

At bottom left is shown the fuselage of a model built by Mr. Kirby, of the Edgware Club, whilst some members of the Chester Club are shown on the right.

the second time since its inception. A snap sent with the report shows Phillip Lees with his model at the "any type" contest.

I attended the Rally organised by this club on April 30th, and, for the second year in succession, the weather was, to put it very mildly, perfectly l——y! To see model after model being smashed to pieces is a sickening sight, and to those chaps whose 'planes I saw reduced to so much scrap I commiserate fullheartedly. The outstanding flight of the day was in the open duration contest, when R. W. Higson, of the Macclesfield Club, made an out-of-sight flight of 180·14 sec. His model was, naturally, lost, as it had gone almost a mile in its three minutes in sight. Happily it has now been recovered, as has C. S. Rushbrooke's, which was also lost in a fine flight of about 100 sec.

The team event, which had been eagerly looked forward to by the lads who wished to come to grips, was left until last, in the hope that the weather would change. There was nothing doing, however, so it was cut down to one flight by each member. The winners were the Lancs. boys, and they certainly deserved it, although my heart bled for Norman Lees, of the Halifax Club, who, in a valiant attempt to snatch victory for his club, smashed a promising "Wakefield" bus. And so on it went, each chap optimistically hoping that the fate of the previous flier would not be his.

A guinea, kindly presented by the Editor of THE AERO-MODELLER, was the prize for the "Champion of the Rally." Points were awarded in Competitions 1, 2 and 4 on the lines of the "Plugge Cup" Competition, and the winner was none other than our old pal "Rushy." A just reward for hiking many miles in an unsuccessful effort to retrieve his model.

The final results were:

EVENT 1.

H.L. Duration. Average of two flights.

1. R. W. Higson (Macclesfield) ... ... 90·7 sec.
2. K. W. S. Turner (Macclesfield) ... 66·4 ,,
3. J. Sturgeon (Bradford) ... ... 58·6 ,,

EVENT 2.

Tow-launched gliding. Average of three flights.

1. A. Tindall (Lancs. M.A.S.) ... ... 26·5 sec.
2. C. Tooby (Halifax) ... ... 16½5 ,,
3. C. S. Rushbrooke (Lancs. M.A.S.) ... 15·3 ,,

EVENT 3.

Team contest. Four members, one flight each.

Winners: Lancs. M.A.S., represented by Messrs. Hill, Smith, Taylor and Bailey.

EVENT 4.

Nearest to 35 sec. One flight.

1. A. Peace (unattached) ... ... 35 sec.
2. R. McWeeny (Bradford) ... ... 36·3 ,,

Champion of Rally: C. S. Rushbrooke (Lancs. M.A.S.).

Mr. M. R. Knight gave a lecture recently to the CHELMSFORD S.M.E., which was enjoyed to the full. Another exhibition has been run by this club, and proved a big success. New models are being tested and having the kinks knocked out—and in—them. Certain members are being "hush-hush" about their Wakefield hopes, but it won't be long now before we see the weeding out!

Another lecturer has been Bob Copland, who gave the EDGWARE M.A.C. some tips, but not how to find thermals! A cinema show staged by this club attracted

such crowds that the L.C.C. inspector forbade the display for a further week. My, my, may his rubber bust! Mr. J. Morris has raised the club record to 8 min. 3 sec. This chap also placed second in a recent competition, won by F. Hiles, with H. Pope third. Two photos to hand from this club show a streamline type fuselage in skeleton form, and a most unusual and interesting job, with a circular wing. I shall be glad if you will supply details of performance, etc., of this job, Edgware, as I'm sure many of my readers will be interested in this most interesting model.

W. Shadforth, of the HORNCHURCH M.A.C., raised the club indoor record to 5 min. 41 sec. on a visit to the Albert Hall. Other club records to go by the board were the biplane, put up to 57 sec. by a junior, C. A. Tiffin, heavy-weight R.O.G. to 97·5 sec. by R. Bowyer, and the R.O.G. light-weight to 125 sec. by J. Burge. News is welcomed of a " Lincol " with blue fuselage, red wings and N.G.A. transfers on the wing-tips, which was lost after about 5 min. proceeding in the direction of London!

" Cannons to the right of 'em, cannons to the left of 'em—someone had blundered "! Don't know if that's right, but that's how someone must feel in the WOKING AND DISTRICT M.A.C. when the R.O.G. board failed to put in an appearance for the Gamage Cup competition. However, a H.L. contest was substituted, the winner being Flight.-Lieut. Featherstone, with an average of 71·7 sec., second being Mr. Gunner and third Mr. Green. One humorist said it should have been " B.O.G."—or, in other words, " blown off ground."

Arrangements are going steadily for the fête organised by the IGRANIC SPORTS CLUB for Whit-Monday. Two photos reproduced here show a " Miss America " petrol model and the framework of a 54 in. scale Aeronca —both nice-looking pieces of work.

More records were put up over the Easter holidays than for any period for some time, I think, the weather certainly bringing the lads out. Mr. Ranson, of the DAGENHAM M.A.C., raised the club figure to 127 sec. at this time.

The WORTHING M.A.C. have been holding an exhibition, as per the photo printed. Pole-flying competitions have been very interesting, the best time being 62 sec. by Mr. H. Stevens. A new idea—a slotted wing —has been undergoing experimental tests, and the M.F. is asked if he is prepared to put up another cup for this club!

I am glad to see that, by unanimous vote, the SHEFFIELD AND DISTRICT M.A.C. decided to continue as an affiliated club. Whilst only numbering 12 members, they are all very enthusiastic, and many new Wakefield jobs are on the go.

A very fine photo is sent in by Mr. A. C. Adams, who says that it was taken on Epsom Downs, but he does not know the names of the folk shown with the model. The small boy was in very efficient charge of the accumulator!

After a period of inactivity, the NEWCASTLE M.A.C. club has found a new lease of life and is functioning under a new committee, etc., who intend to place the club on the map. A competition held on Good Friday was spoilt by wind, the winner being John Bowmer. (Would you Press secretaries please include times when reporting competition results, as it is interesting to other clubs to compare times?) This club is to hold a Wake-

" . . . and playing with his toys, too . . . isn't that nice! "

field type competition on Whit-Monday, " *which should prove an early season test for this type.*" The italics are mine, and I incline to think that by Whit-Monday the whole point for Wakefield types will have passed! Two photos from this club show a very well built and finished " gas " job by Mr. Kennedy, and a really good shot of a " Gladiator " built by Arthur (Big-hearted) Wostenholme. This is the way to photograph your models, fellows! The Newcastle secretary would be pleased to hear from anyone with a second-hand duplicator to sell cheap!

A photo sent in by the HARROW M.A.C. shows Mr. J. O. Young, the club champion, who put up the best club times in both the Gamage and Weston Cup competitions, bagging at the same time a cup given by the chairman. Another snap is of Mr. L. McFarlane holding a Wakefield job, the " Swallow," constructed from plans given in the April issue of THE AERO-MODELLER. Mr. Hicks has had two very good durations of 17 min. 30 sec. and 14 min., while Mr. Holt lost an ancient Lincol after 4 min.

Two interesting photos are from the RUSHOLME AND DISTRICT M.F.C., showing, firstly, a Fokker D.VIII and a group of models built by Mr. Robson. These snaps were taken by a member of a German club on a recent visit to the club.

Our old friend K. B. Evans, of the YEOVIL AND DISTRICT M.A.C., sends the following bright comment:

" *Gamage and Pilcher Cup Contests.*—It blew like hell, and rained all day, so we picked up the pieces and went away to talk of matters—mainly of GER-MAN-Y. Last Sunday all, with Arthur Fox, complete with gliders in a little flat box, did go to places high and dry—for a little gliding we did try. We started off, things went very well, then up came the wind, down came the rain, and we all started packing and ran home again.

Starting from the top left, we have a Fokker D.VIII, a group of members of the Stockton-on-Tees Club and a 1939 Wakefield model built by Mr. R. Renault, of South Shields.
Next, left, is Bruce Young, a very keen and well-known youngster, some models by members of the Rusholme and District Club and a model of the Gloster "Gladiator" built by Mr. F. A. Wheeler, of Cheltenham, from plans published in the November, 1938, issue of the "A.M."
The bottom left photo shows a group of aero-modellists at Gardner's Aerodrome, Sanderstead, Surrey, some members of the Northants Club, and, underneath, Mr. N. Wallens with a 10 ft. span petrol 'plane, and on the right members of the newly-formed Sunderland M.A.C.

"Substitute cussing for packing, and swearing for ran home, and you have the true facts.

"Yeovil, the Gateway to the West. Yeh! Our models should know, they go there!"

A "Judge Wakefield" model built by Mr. Holmes, of the WOLVERHAMPTON M.A.C., did some "electric pylon flying"—which did not do the model a great deal of good! No place like Ohm, Watt! Terrible, ain't it! Tree-climbing has come in for its fair share of attention—and cussing!

The indoor flying season of the LIVERPOOL M.A.S. reached its climax on Saturday, April 15th, when a competition was held for cups presented by the Society's president, Capt. H. J. Andrews. The occasion was once again well supported, there being a large number of competitors in both the senior and junior events. Points were awarded for workmanship, appearance relative to scale, quality of flight, steerability and duration (hand-launched). The models were also required to fulfil an R.O.G. test and remain in the air for a specified minimum time after same. No model was permitted to weigh more than one ounce, one point being given for each $\frac{1}{16}$ oz. reduction less than the maximum. The maximum wing area allowable was 100 sq. in., all models being tissue covered and complying with the S.M.A.E. fuselage formula. The winners were as follow:

	Total points
SENIOR SECTION.	
1. B. V. Haisman	142
2. B. Blundell	113
JUNIOR SECTION.	
1. S. A. Blackman	107
2. L. Withers	61

The BOLTON M.A.S. are hoping a weather prophet will join the club! A recent competition was spoilt by conditions, the eventual winner being Mr. N. Lancaster with an average of 70·5 sec., which was very good for the day. These chaps have a new flying ground of some 30 acres, clear of obstructions, and C.A.V.U. Now then, how many of you know what that means?

The STOCKPORT AND DISTRICT M.F.C. have decided to drop the 20 member limit, and a large room suitable for pole flying has been obtained. A competition for the " Hammond Cup " resulted as follows:

	Av.
F. Mitchell	105 sec.
C. Hodgkinson	94 ,,
W. Bingham	84 ,,

The LEEDS M.F.C. activities in decentralised competitions has been disastrous so far—wind and rain making for anything but good times. The best duration in the Weston Cup was made by the starboard wing of a lady member's model—time, 32 sec., damage, muchie muchie! As it was not officially entered, there were no Plugge Cup points awarded. The secretary caused great whoopee by disgustedly jumping on his 'plane.

An open meeting held by the DONCASTER M.F.C. was attended by a number of other clubs, and in spite of adverse conditions a good time was had. Mr. Leeming, of the Gainsborough Club, won the Concours Class, Mr. Cuttriss placing second. The flying class was a chapter of accidents, the winner being Mr. Hill, of Doncaster, with 140 sec., and Mr. Soseby runner-up, with 105 sec.

The " monthly total " competition mentioned in a previous report of the ASHTON AND DISTRICT M.A.C., was won by F. D. Ward, with a total of 1,447·4 sec., second W. Hegginbottom with 1,302·2 sec., and third E. Brown with 1,034·8 sec. The best time of the month was put up by C. B. Jackson at 113 sec., while a 36 in. span " Tiger Moth " built by W. Titterington has been putting in some very steady flights.

Mr. R. N. Bullock gave a lecture to the OXFORD M.F.C., which was very much appreciated.

So many requests are being received by the HAYES AND DISTRICT M.A.C. for permits to try their petrol models on the club ground—Fairey's Aerodrome—that the club has decided to hold an invitation meeting on May 21st. The Hayes Club are to be congratulated in winning first three places in the C.S.S.A. Cup—also on the addition to the membership of Messrs. Sharvill, Copland and Trevithick. What it is to have a really good ground!

Messrs. Hawkins, York and Cosh—our tried and trusty S.M.A.E. officials—were present at the supper and prize-giving of SHORTS M.A.C., a long list of lucky winners receiving their awards from Mr. Hawkins' fair hands! A film show that followed was well received, and from all accounts they managed to have quite a good time. (Tell me any aero-modellers who don't know how to do that!)

The WARRINGTON M.A.S. Open Rally will be held this year on June 11th, the list being as follows: Open duration; fixed time duration; Concours; flying scale. The meeting starts at 11 a.m. (it states in the report 11 p.m., but I think I am right in my correction!) and will take place at Mosswood Hall Farm.

Ken. Scamell of the SALISBURY AND DISTRICT M.E.S., averaged 98·6 sec. in winning the first round of the club " six-round contest." Major Hughes was very unfortunate in losing his model after a flight of about six minutes on test—but this was not officially timed, and could not therefore be booked as a club record. Hard luck!

Scale models are all the range in the OSSETT AND DISTRICT M.F.C.—much to the disgust of the secretary and treasurer, who are both duration fans! The club duration stands at 40·4 sec., so I suggest these two gentlemen get their socks well and truly hoisted and justify their opinions!

A very well-trained model is owned by Mr. Chant, of the CARDIFF M.A.C. After a flight of 5 min. 9 sec. O.O.S., during which it evidently found a thermal over a brewery—and no wonder, it landed outside a pub. on the main road—and this is the second time it has winged to the same pub. Now then, Mr. Chant, is this hereditary? A policeman held up the traffic till the model was recovered, and I hope Mr. Chant stood him a " quick one " round at the back!

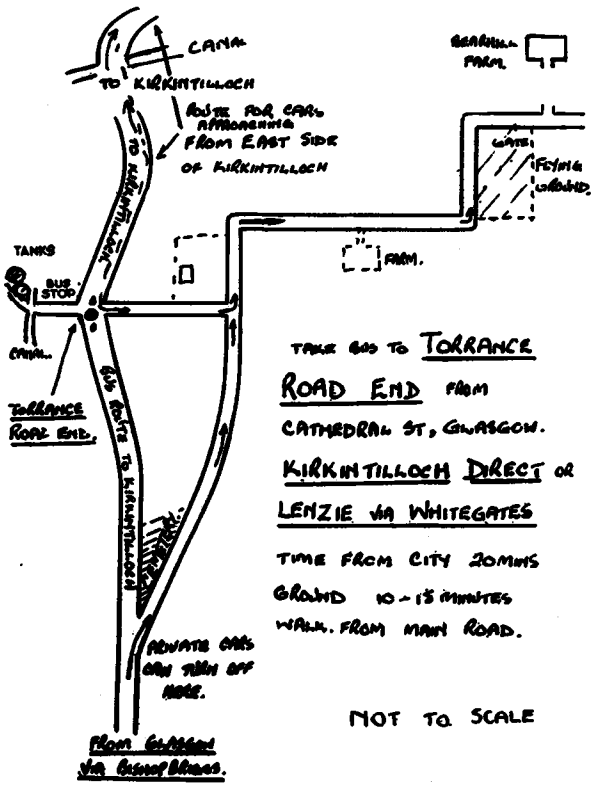
The DULWICH M.A.C. are pleased to announce that Mr. Bracewell-Smith, M.P. for Dulwich, has consented to become their president, and has also handed them a cup for annual competition. This club announces also that it is open to all challenges, and any club who would like to take up the gauntlet should get in touch with the secretary.

Easter Sunday proved to be the only Sunday during the past month suitable for flying. On this day the BRIGHTON D.M.A.C. held its bi-annual contest for the Brigden Cup, which is for the average of three flights R.O.G. The results were as follow:

	Av.
1. I. C. Lucas	91·2 sec.
2. S. Turner	75·13 ,,

During April the B.D.M.A.C. has taken part in two exhibitions. The club held a weight-guessing competition in aid of the Wakefield Fund, the machine used being a 6 ft. 6 in. span petrol model built by Mr. H. J. Tugwell, the wing of which was in skeleton, but the rest of the machine completely finished. The weight was 3 lb. 13 oz., and one entrant guessed dead right, but other guesses ranged from 3½ oz. to 250 lb.! What do people think models are made of—lead?

" Queer. I'll swear it came down here somewhere "!



Scottish readers, don't forget the special event arranged for you by the GLASGOW M.A.C.

The meeting, as already stated, will commence at 11.30 a.m. on June 4th, and will be held at Bearhill Farm, which is near Bishopbriggs. In order to get to the place, competitors travelling from the city will require to take a bus from Cathedral Street to Torrance Road End, on the Kirkintilloch Road. When they dismount from the bus they must cross the road and go along the branch road, past the Lenzie Cricket Ground, turn to the left at the junction with another side road, and carry on along that road. They will pass a farm on the right side of the road and will see the field in which the meeting is to be held round the bend to the left.

Should they come by private car from Glasgow, it is not necessary for them to go to Torrance Road End, as they can fork to the right at the Cemetery, on the main road. This will take them to the junction of the branch road from Torrance Road End, and their way is straight on from there.

Anyone coming from the Edinburgh side of Kirkintilloch should turn at the Torrance Road End and carry on from there, as the back road from Lenzie and that side of the meeting-place is too intricate to attempt to explain.

The main thing is to keep to the main Glasgow—Kirkintilloch Road, and branch at the Torrance Road End, which will be recognised by the fact that it is the only turn on the main road with traffic signs and an island. In addition, an obvious landmark is the Admiralty Station, with oil tanks, situated on the canal, and easily seen from the road.

The GENERAL AIRCRAFT M.A.C. held an interesting exhibition, which was visited by many well-known figures in the aeronautical world. Many interesting exhibits included some pre-war periodicals, laminated props. of 1910 vintage, and a slotted and flapped high-wing job with tricycle " undies." Mr. Baker, vice-president, proved that some of the notions regarded as modern were a bit on the ancient side!

The BARNES AND DISTRICT M.A.S. have been doing remarkably well in the " decent." competitions, running second to Halifax at the moment. Three club records recently broken are:

Biplane	...	81·0 sec.	by Mr. C. L. Dodd.
Scale	...	24·8 ,,	,, Mr. C. E. Wakefield.
Glider	...	235·0 ,,	,, Mr. A. Coulthard.

Will chaps in the Windsor area note that the SLOUGH AND WINDSOR M.A.C. have taken new premises at " The Bungalow," 201 Clarence Road (rear of Maxwell's Garage), Windsor, where meetings are held every Tuesday evening?

E. Meredith, of the CHESTER M.F.C., won both the flying and concours classes in a scale contest recently, his " Taylor Cub " averaging 29 sec. in a high wind—which, I claim, is pretty good going. A. Head took first place in the junior section. Two members visited the Lancs. Club on Pilcher Cup day, but had bad luck with their models. Phillips's glider recently made a very good flight—it's a six-footer—finishing up in the river, where it was discovered sitting as proudly as an Empire flying-boat!

Mr. R. F. L. Gosling won the BRADFORD M.A.C. duration competition on April 2nd with an average of 70 sec., runners-up being G. A. Adcock with 55 sec. and Gosling, junr., with 51·8 sec.

A first report from the MILDENHALL M.A.C. gives news of an inter-club contest with the Cambridge Club, results being:

INTER-CLUB CONTEST.

M.M.A.C.	...	...	...	...	243·5 points
(3 min. 21 sec. O.O.S., second flight).					
C.M.A.C.	...	...	...	...	219·4 ,,

INDIVIDUAL DURATION.
(Average of three flights, H.L.).

Mr. McBeane (C.M.A.C.)	...	...	84·5 sec.
Flight-Sergt. Darling (M.M.A.C.)		...	81·1 ,,
Corpl. Rowell (M.M.A.C.)	...	...	50·6 ,,

TIME LIMIT (nearest 40 sec.).

Flight-Sergt. Darling (M.M.A.C.)		...	40·4 sec.
Corpl. Hewins (M.M.A.C.)	...	...	41·0 ,,
J. Darling, junr. (M.M.A.C.)	...	...	38·0 ,,

SPOT LANDING (massed H.L.).
Mr. Moden (C.M.A.C.).

In response to urgent requests—and threats of reprisals—the BATLEY AND DISTRICT M.A.C. have started a junior section, which proved an immediate success. This club has now cleared the " growing pains " period and looks like going ahead well. In common with all other clubs, Gamage and Weston days were ————! The first club competition of the season was won by D. Hinchcliffe with an average of 98·7 sec., V. Dubery second with 83·63 sec. and R. Dubery next with 60·85 sec. The second man made a record by building a job practically overnight—pinching his brother's materials!—and rubbed it in by beating him to second place. A member has made an " original " prop., with both blades carved the same way. This is called a push-pull—used in dirty weather to keep the grit out of the pilot's eyes!

The STOCKTON-ON-TEES M.A.C. was favoured with ideal conditions for the first competitions of the year. A. Crooks won the Junior Cup with an average of 71·5 sec., also the 30 in. class, with an average of 64 sec. The

H.L. any type was very popular and was carried off by M. Bennison with an average of 119 sec. Breaking the club record whilst doing so with a flight of 233 sec. W. B. Patterson was second and A. Birks third. Patterson won the R.O.G. event with an 88·5 sec. average. A photo shows a group of the contestants at this meeting.

A. R. Wigdall, of 43 Starmont Road, Garston, Liverpool, is desirous of getting into touch with other readers with a view to exchanging plans, etc.

A photo sent in this month is of a very enthusiastic young reader, Bruce Young, who is seen with his model —and the " A.M."

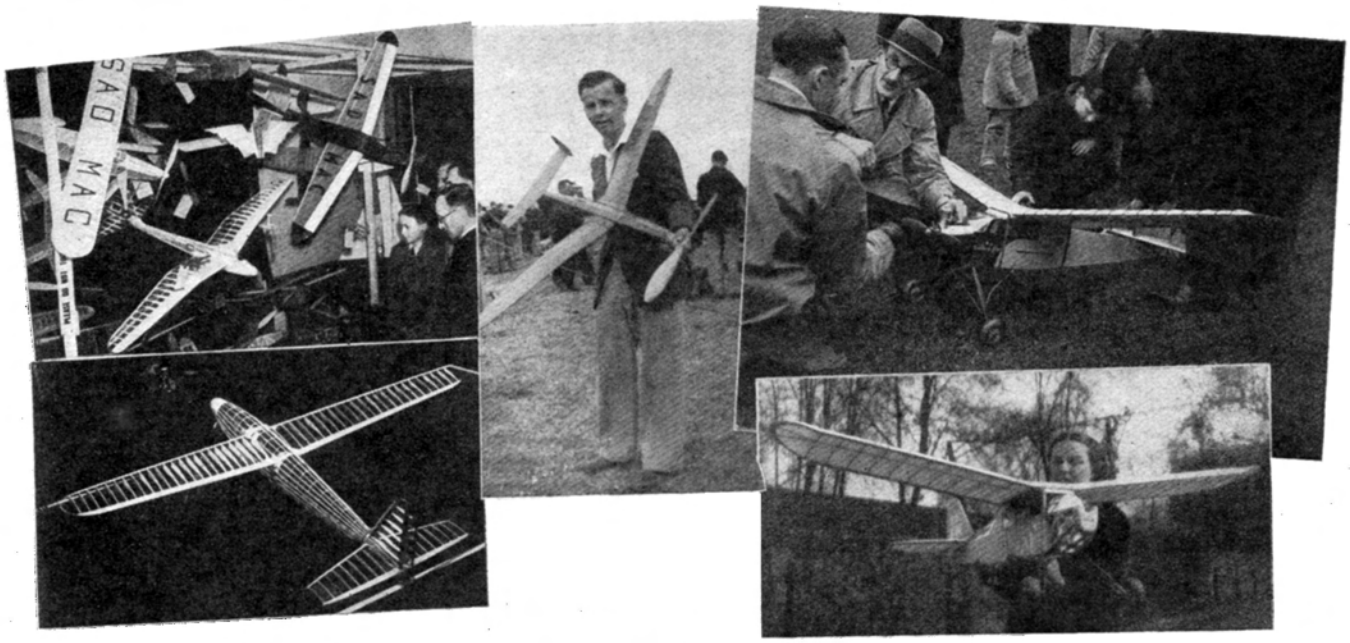
" Rushy " has been getting about again, a report from the ILKESTON M.A.C. appreciating a lecture given by him on the growth of the movement, and a number of tips, etc., on the general conduct of matters in club life. Members of the Mansfield Club were welcomed. The first competition of the year was won by F. Smedley at 78·6 sec., W. Smedley coming next with 54·4 sec. and R. White third with 51·2 sec. The winner put up the best time of the day with 109·4 sec.

An inter-club meeting with the FURNESS M.A.S. and LANCASTER clubs was spoilt by the old bugbear, wind, but a very enjoyable time was spent by all. W. Gates (F.M.A.S.) was first in the competition with an average of 52·2 sec., G. B. Panner second with 39·6 sec., and E. Broderick (Lancaster) third with 33·4 sec. W. D. Foster, of the Lancaster Club, won the light-weight event with an average of 50·4 sec. Mr. Booth recently broke the club record with a fine flight of 4 min. 31·2 sec. Unfortunately the model was lost.

Mr. G. Gibbons, of the ANDERIDA M.A.C., made a fine flight of 6 min. O.O.S., and finally landed within 100 yards of its home! Well-trained, what! A few days later it clocked 8 min. 15 sec. Two members have unfortunately had to leave the club, but one has left his models to the members as compensation!

The LANCASHIRE M.A.S. report good progress, in spite of poor conditions—and a feeling of annoyance at not having fixed any meetings over the Easter holidays, when the best weather for months was experienced. On top of this, there was no flying by full-size craft on the aerodrome! " Damage Cup " efforts were made in pouring rain, whilst Weston Cup flying was accompanied by wind, wind and more wind—likewise much cussing! The Northern Challenge Cup event, run in conjunction with the latter competition, was won by F. Bailey, " Rushy "—flying a new, untried job—finished at 8.15 that day, placing second, with A. Tindall third. The latter fellow only made one flight, being unfortunate enough to sprain his ankle on rough ground, and not being able to get his other flights in before the " deadline " of 7 p.m.

The last of the indoor meetings was very well attended, P. L. Smith winning the pole-flying event, breaking the club record for this type with a flight of 2 min. 24 sec. R.O.G. I wonder how this compares with other club pylon times? The members of the Windsor (Manchester) Club did very well in the microfilm class, as reported earlier in this section, but the Lancs. microfilm " expert "—" Rushy "—was away on business and could not uphold the club prestige. I am in receipt of the second number of the L.M.A.S. publication, *Contact*, and would congratulate the members on their effort.



At top left we have a photo of some of the models exhibited at the recent Sevenoaks Exhibition, and in the centre Mr. L. McFarlane with his Wakefield model, the "Swallow," built from plans given in our last issue. On the right is a petrol 'plane which was recently seen flying on Epsom Downs.
At bottom left is a fine Wakefield model built by Mr. Vernon Hills, of the Cardiff Club, and on the right a "Buccaneer" built by Mr. Jarvis, of London.

Club secretaries who would like copies of this monthly for their members are asked to get in touch with the Lancs. secretary.

I am told of two club records being broken in the NORTHAMPTON M.A.C.—but no times are given. Perlease, Mr. Peach! Mr. E. W. Evans has raised the H.L. figure to 8 min. 15 sec. O.O.S. A photo shows a group of the members with models, a very nice-looking job being the one on the right. Is it a Tse-tse Fly?

Mr. Hills, of the CROYDON AND DISTRICT M.A.C., won the Championship Trophy for the greatest number of points gained during the season, Mr. Pithcher the Heavy-weight Cup with a flight of 169 sec., Mr. Farrar the Light-weight Cup with a flight of 5 min. 15 sec., and Mr. Franconi the Scale Cup. This club is running a club magazine and is improving monthly.

Mr. Snape, of the SWINTON AND DISTRICT M.A.C., won a recent open pole-flying competition at the L.M.A.S. meeting after tieing with a Lancs. member, both clocking 99 sec. Mr. Snape won the fly-off by 11 sec. The competition for the "Cliff Cup" was spoilt by wind, the winner being G. Cliff. The contest was for the nearest duration to 45 sec.

The SHEFFIELD S.A.M. open rally is to be held this year on June 25th, programme as follows:

H.L. Duration.
Gliding.
R.O.G. Wakefield types.
Timed flight.
Petrol models.

This will be held, as last year, at Norton Aerodrome, commencing at 11 a.m. A larger take-off board has been procured, and it is hoped that last year's difficulties in getting off will be overcome. The competition system is based on Mr. Rushbrooke's, which has created much favourable comment. All are invited, including myself! Now, you know darn well I daren't give my identity away! Think of all the press secretaries who'd be after my blood for my "blue-pencilling" activities. However, I shall most likely be there incognito, so be kind to all!

A good photo of a model in skeleton form is sent by the CARDIFF M.A.C., the builder being Mr. Vernon Hill and the model a "Chasteneuf" Wakefield. This club is arranging a competition in aid of the Wakefield Fund.

The HIGH WYCOMBE M.A.C. have been presented with a cup by their president for petrol model competition. A member of this club, Mr. F. Bunce, flew a pusher type biplane in the Gamage Cup event and broke the existing British record with a flight of 76·5 sec. R.O.G.

BLACKHEATH M.F.C. have been having some interesting and lengthy committee meetings lately, competition items coming in for most of the discussion. A sub-committee will pick teams, etc., from a chart based on form shown during the season, which strikes me as a good idea. "Question Night" proves a a popular evening with these chaps, but Coshy put his foot in it recently when replying to the query: "What is the area allowed for a Wakefield type main-plane?" and answered "190 to 200 sq. in." Was his face red!

Mr. C. Herring, of the SKEGNESS M.F.C., won first prize at an exhibition held recently, also broke the club R.O.G. record with a flip of 145·2 sec. and the H.L. figure with a time of 135 sec. Good going, eh!

Mr. B. Brewin (bet you he's called Bobby!), of the WEMBLEY AND DISTRICT M.F.C., put up a new club record of 5 min. 56 sec. over the holidays, while J. Holland won an inter-club contest with an average time of 118 sec.

News of interest to our East Scottish readers comes from the EDINBURGH M.F.C., who are staging an open meeting on July 17th at 3 p.m. Place, Silver-

knowes Farm, entrance fee 1s., models Wakefield types. Full particulars can be obtained from the secretary at 4 Hermand Crescent, Edinburgh 11.

Two fine photos are sent in by the ROTHERHAM M.F.C., these being taken at a recent meeting—the biggest competitor being again the wind. Best time of the day was 147 sec., which was good under the circumstances. This was the first public meeting of this club, and it is hoped to have better conditions next time.

A few new clubs this month send reports, and here goes. Chaps are asked to get in touch with Mr. H. G. Finch, of Byeways, Winchelsea, Sussex, who is secretary of the RYE AERO-MODELLERS' CLUB.

Another new club in London is the CUMULUS M.A.S., secretary Mr. F. J. A. Henderson, of 57 Cairo Road, Walthamstow. The best flight recorded so far in this club is one of 4½ min. by Mr. R. Collins' streamlined job.

A. Stoner, of 21 Lee Street, Horley, Surrey, has formed Flight A of the FLYING ACES CLUB, and wishes all interested to get in touch with him.

The same goes for the CHIGWELL AND DISTRICT M.A.C., whose secretary is Mr. W. O. B. Smee, of 41 Mount Pleasant Road, Chigwell, Essex.

And so, good-bye everybody, for the time being. I've got tons of repair work to do after the beautiful calm weather we haven't been getting, and it's almost a case these days of building a new model each week. Alack-a-day!—and to think of the marvellous summers our grandfathers talk about. It seems we are changing the seasons or summat! Till next month, my children, and here's to seeing you at Fairey's on Wakefield Day.

THE CLUBMAN.

Results of Weston Cup. 15-4-39

	Average.	Plugge Points.
1. E. Davies (North Kent)	156·5	82
2. R. Copland (Northern Heights) ...	150·5	81
3. N. Lees (Halifax)	146·56	80
4. H. Austwick (Halifax)	114·8	79
5. E. Chasteneuf (Blackheath) ...	113·4	78
6. —. Wilson (Northern Heights) ...	107·6	77
7. R. Bowyer (Hornchurch)	99·06	76
8. R. N. Bullock (Blackheath) ...	98·35	75
9. F. Bailey (Lancs.)	94·83	74
10. R. W. M. Mackenzie (Blackheath)	92·6	73
11. P. White (Luton)	91·4	72
12. P. W. Smith (Luton)	90·1	71
13. E. W. Evans (Luton)	88·6	70
14. J. Young (Harrow)	87·6	69
15. C. S. Rushbrooke (Lancs.)	84·0	68
16. F. Almond (North Kent)	83·4	67
17. W. Lawrence (Luton)	82·0	66
18. N. Blacklock (Harrow)	80·5	65
19. C. S. Wilkins (Bristol)	80·03	64
20. L. Chiffey (Dartford)	79·0	63

There were 85 entries, of which 82 flew off.

Plugge Points Gained in Weston Cup

Blackheath	226	General Aircraft ...	76
Northern Heights ...	220	Hayes	76
Halifax	219	Hornchurch	76
Luton	213	City (Birmingham) ...	69
North Kent	206	Birmingham	53
Lancs.	173	P.M.A.L.	53
Harrow	172	Woodford	33
Dartford	161	T.M.A.C.	31
Bristol	146	Shorts	22
Barnes	135	Hawker	18

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